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DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

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MEDICAL SCIENCE.

JANUARY 1, 1909.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Baths and Mineral Waters, and some Fallacies connected therewith: a Criticism.*[a] By WALTER G. SMITH, M.D.; Ex-President, Royal College of Physicians of Ireland; Physician to Sir Patrick Dun's Hospital.

I do not think I can find a better introduction to my communication than by quoting the opening sentence—Teutonic in length—of Dr. Rutty's remarkable Essay on the Mineral Waters of Ireland, written more than 150 years ago (1757):—"At a time when an affectation of the use of spirituous liquors greatly prevails among the inhabitants of a country, to the great prejudice of their health as well as morals, it seems to be not an unseasonable undertaking to recall to their observation and recommend to their use, Water, the original natural drink of men, and as yet the only drink of most of those nations we call heathen, and indeed the most wholesome of all drinks, and the most universal Medicine in nature, and, as variously impregnated and compounded

[a] Read before the Medical Section of the Royal Academy of Medicine in Ireland, on Friday, November 6, 1908. [For discussion on this Paper see p. 55.]

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by the Divine Wisdom, found more efficacious than all the productions of art in the cure of chronical diseases."

As an example of the local fame of a chalybeate spring near Gorey, and of which the Irish name was *Tobbernearing—i.e.*, the *Iron Well*—he tells the following story :—

An emaciated young man, aged twenty-two, "with a severe cough, and withal an hemiplegia," drank the waters for six weeks, and recovered his health. Twenty years later he married a widow, who had also taken the waters. She had borne no children to her former husband, though a promising person, but soon proved fruitful with her new husband and consort in drinking the waters. This event gave rise to a song of which the following lines were part :—

"Consumptive lad,
With asthma bad,
Grew rampant and piqueering ;
And widow pale
From head to tail
Was cured at Tobberneering."

Some foreign chalybeate spas are known as "ladies' baths," from their supposed efficacy in affections peculiar to that perplexing sex.

Mineral waters—*i.e.*, either thermal springs, or waters impregnated beyond the limits of drinking water with certain gases or salts in solution—have been known and utilised in therapeutics from the earliest dawn of history. The Thermæ of the Greeks and Romans played an important part in their life, and were used largely for purposes of luxury and self-indulgence—*Balnea, vina, Venus corrumpunt corpora nostra.*

In ancient times the virtues of medicated springs were ascribed to the influence of a presiding deity, and the properties of some sulphur wells have been attributed by local tradition to the notion that the devil had been ducked in them. Even now they are surrounded by a variegated halo of mystery, credulity, and superstition which have not yet been wiped away by the effacing sponge of time. Belief in miraculous powers dissolved in or associated with the waters still lingers,

whether half consciously held or bolstered up by impudent advertisement.

Much wise shaking of heads occurs and oracular recommendations of this or that watering place are delivered, *ex cathedrâ*, when patients, some of them with too much in their stomachs and too little in their heads, seek the advice of a consultant. In such matters is not our advice or opinion often as straddling and uncertain as the gait of an ataxic patient? The favour of a sovereign, or of the upper ten, is of immense value to the prosperity of a bath or health resort, and carries more weight than elaborate chemical analyses, which bewilder the uninitiated. Fashion and caprice too often rule the fortunes of many baths.

If we try to disentangle the grains of truth from the rubbish-heap of ignorance and self-interest we soon arrive at two conclusions—(*a*) that the essential points for discussion are few, and not so very complicated as appears at first sight: (*b*) that there are some real difficulties—mysteries if you will—which await solution. One such problem is that of radio-activity. Although physicists have amply proved the existence of this singular quality in a great many mineral springs, it is at present premature to draw any conclusions as to its efficacy, and the question remains an open one, which has scarcely emerged from the shadowy region of speculation. It is, however, right to mention that at a recent meeting of German scientific men, Dr. Zucker, of Dresden, considered that the curative action of radium was a proved fact, and stated that the Joachimstal waters are the most powerfully radio-active. Gastein, Baden-Baden, Kreuznach, and Wildbad came next (*Brit. Med. Jour.*, October 10, 1908).

Radium "emanation" is an unstable gas which, after emission of α-particles, decomposes, and furnishes helium and other derivatives—*e.g.*, Radium A, Radium B, &c. Considered as a storehouse of potential energy, radium emanation is probably the most powerful chemical agent in existence. Ramsay calculates that 1 cc. of it contains, or can supply, three million times as much heat as an equal volume of a mixture of two parts of hydrogen and one part of oxygen.

Poulsson, of Christiania (Schmiedeberg's "Festschrift," *Archiv. f. exper. Pathol. u. Pharmakol.*, 1908), has made experiments with water artificially impregnated with radium emanation. He was unable to satisfy himself that it exerted any appreciable physiological action, nor could he observe any effect from its administration to two diabetics. Natural waters contain excessively minute and variable amounts of the emanation. According to Engler and Sieveking the richest is the "Altrömische Quelle" of Casamicciola, whose activity is reckoned as 372.2 (Mache's scale) as compared with activities ranging from 0.4 Carlsbad Sprudel, to Gastein 149. It is possible that allowance may have to be made for loss of radio-activity in the waters of certain springs when they have become stale and altered by transport and storage.

Balneology offers a highly popular and extremely lucrative field of practice to its disciples, and it is amusing, albeit somewhat humiliating, to read the published accounts of some baths which are paraded with such a magniloquent exuberance of verbosity. An infinitude of sapient nonsense can readily be culled from the clamorous jargon in handbooks of the various spas; dogmatic assertions are made and rules of conduct laid down without an iota of scientific foundation, and which are, indeed, often mutually contradictory and self-destructive. A superficial and discreditable literature has sprung up, which trades upon the catch-word "metabolism" (v. Noorden). This is abundantly illustrated in the literature relating to the fashionable "cult" of uric acid, where audacious speculation masquerades as real knowledge.

Now let us look at the matter simply and rationally. We have to take into account (*a*) water alone; (*b*) the substances held in solution in the water.

Every prospectus of a "hydro" or medicated spring flaunts before its devotees an elaborate chemical *menu* of the contents of the water, certified by the celebrated Professor X. or the eminent Dr. Y. What does all this imposing array of figures, with misleading pretensions to accuracy expressed

by decimals to five places, mean? In truth, very little—much less than credulous folk, whether lay or medical, imagine. Apart from the folly of attaching much therapeutic value to the infinitesimal amounts of many of the recorded items, there is a serious fallacy underlying all such statements.

We are informed, *e.g.*, that such a water contains so much per cent., or per 1,000, of sodium chloride, so much potassium bicarbonate, sodium sulphate, lithium chloride, arsenious acid, &c., &c., and so on, *ad infinitum* and *ad nauseam*. Now, any practical chemist knows perfectly well that the specification of individual salts in a complex mixture is only a matter of convention or of guess-work. He does not really know and cannot tell how the acid radicals and the basic radicals are severally distributed. Nobody knows, *e.g.*, whether it is potassium sulphate or acid potassium sulphate which exists in a given water; and two chemists, with the same set of analytical figures before them, might produce two tables showing considerable differences. Moreover, analytical figures can readily be juggled, possibly in the interests of the managers of the baths, so as to exhibit a particular ingredient in an undeservedly prominent light. Thus, the amount of lithium in a water will figure very differently according as it is expressed as oxide, chloride, carbonate, or sulphate, owing to the different molecular weights of the acid radicals (*cf.* Rosemann, "Ueber den Werth der Brunnen-Analysen," *Therap. Monatsh.* 1896, S. 637). A chemical analysis of a water should simply state the respective amounts, per litre or gallon, of each basic and acid radical—*i.e.*, of the ions, which are the real objects aimed at by ordinary methods of analysis. And this leads to the consideration that we have to reckon with the modern theory of ionisation.

There is a weighty body of experimental evidence that salts, in dilute solution, are largely fractured, as it were, into sub-molecules, of opposite electrical endowment, and which are termed *ions*. By ionisation we mean the dissociation of a compound into ions under the influence of a solvent.

All soluble acids, bases, and salts are more or less freely ionised when dissolved in water. Thus—

	+	−
Na Cl, in dilute solution	Na	+ Cl
$K_2 CO_3$ „ „	K_2	+ CO_3
$Na_2 SO_4$ „ „	Na_2	+ SO_4

and so on. So that the medicinal action of a medicated water depends mainly upon its ions, and not upon the salts considered as integral molecules. But we must allow some share to the action of the undissociated portion of the molecules, and this part is proportionately large in the case of concentrated solutions—*e.g.*, Droitwich water.

Furthermore, we must recollect that some ions—*e.g.*, Na and Cl—are almost physiologically inert in dilute solution. We are all familiar with the inaccurate phrase "normal or isotonic saline solution," so often heard of in physiology and histology—*i.e.*, a solution of Na Cl, 0.6–0.9 per cent. Other ions, on the contrary, such as I and Br, have powerful specific actions.

Therefore, in a solution of mixed salts we have to take into account three things, pharmacologically—(*a*) The undissociated molecules. (*b*) Indifferent ions—*e.g.*, Na and Cl. (*c*) Ions of specific action, and of very different absorbability—*e.g.*, I, Br, Ca, SO_4, &c. I freely admit that the average medical man more readily grasps something of the nature and probable effects of a given mineral water when its contents are expressed as salts instead of ions.

Closely interwoven with the theory of ionisation is the doctrine of osmosis, and modern balneology, if it is to redeem itself from crude empiricism, must recognise the recent teachings of physical chemistry. Osmosis and diffusion are merely different manifestations of the same action. The tissues of our body are a sort of sponge, permeated in every direction by innumerable osmotic currents, which undoubtedly play a large and important part in the physiology of living organisms, animal or vegetable. The action of saline cathartics is intimately related to osmotic processes, and numerous other illustrations could easily be adduced. In

truth, every cell in the body may be viewed as a tiny force-pump and suction-pump, and the infinitely small dominates the living aggregate. Hence we see that a complete analysis of a mineral water involves two sets of data—(1) Purely chemical—*i.e.*, qualitative and quantitative determination of the substances present. (2) Physico-chemical—*i.e.*, determination of the degree of dissociation, and of the osmotic pressure, by measurements of the electrical conductivity. In regard to osmotic pressure, waters may be classified into three groups:—(*a*) Hypertonic—*e.g.*, the stronger saline bitter waters; these remain longer in the stomach owing to the considerable difference in osmotic pressure between the mineral water and the blood. (*b*) Isotonic—*e.g.*, Carlsbad, Marienbad, Wiesbaden. (*c*) Hypotonic: the "indifferent" waters—*e.g.*, Bath. Practically all table waters taken at or between meals are of low molecular concentration. (For such a complete analysis see Köppe, *Physikalische Chemie*, 1900, 137.)

Unavoidable ignorance of these conditions vitiates much of the earlier physiological investigations upon the influence of normal salts, alkalies or acids, respectively, upon muscle-cell, nerve-fibre, and the lower organisms. Upon the possible and even probable intervention of catalysis in physiological action I cannot enter.

We now perceive how complex the problem becomes, and we will hesitate to glibly use such phrases as (*a*) water action; (*b*) salt action.

Do we know anything of the physiological action of *pure* water? Nothing whatever. Pure water, as obtained by Kohlrausch and Heydweiller, is extremely difficult to prepare, and it is an almost absolute non-conductor of electricity. Its trace of conducting power is due to the fact that pure water itself is very sparingly dissociated into free ions of H and OH. Twelve and a half million litres of water contain about 1 gram H-ions and 17 grams OH-ions—*i.e.*, one gram-molecule.

Every water which shows a higher conductivity for electricity owes its increased conductivity to its containing

ions of other substances in solution, and the list appended exhibits the relative conductivities of some diverse specimens of water:—

Electrical Conductivity of Waters. Expressed in Reciprocal Ohms, Multiplied by 10^{10}, *and at a Temperature of* 18° *C.*

Absolutely pure water	.038
Water from molten natural ice	2.13 to 8
Boiled distilled water	10.
Water from the "Gift-brunnen," Gastein	31.9
Ordinary distilled water	49.2
Water from molten artificial ice	137.
Brunnen spring, Giessen	344.
Marienbad, Ambrosius spring	1,142.
Liebenstein, chalybeate	1,979.
Homburg, Louisa spring	5,646.
Kissingen, Rakoczy	10,058.
Na Cl solution, 0.73 per cent.	11,050.
Homburg, Elisabeth spring	15,493.
Na Cl, 1.46 per cent.	20,038.

Water carefully distilled and freshly boiled is commonly reckoned pure, yet its conductivity shows that it is far from being so.

The purest water in nature is the molten water from natural ice. Water from artificial ice is less pure. Hence artificial ice is better for medical use than natural ice, just because it is less pure; for the purer water is the more injurious is it to the tissues, and the greater the osmotic disturbances provoked by it. Hence, also, why snow water, or that from glacier streamlets is so hurtful to drink, and is avoided by prudent mountaineers.

Pure water action and pure salt action are merely theoretical limits, and what we really have to cope with is the *relative* salinity of the various waters. Mineral waters are employed in two ways:—(1) Externally—*i.e.*, locally. (2) Internally—*i.e.*, systemically.

It has been sufficiently proven that water, and substances soluble in water, are scarcely, if at all, absorbed by the

unbroken and uninjured skin. The notion, *e.g.*, that a chalybeate water has any systemic influence, *viâ* the skin, is quite childish. Hence the effects of immersion baths, if care be taken to exclude absorption by the mucous apertures and channels of the body, must be regarded as purely local, or, they act as reflex stimuli.

The essential factors of external action are two—viz., temperature, and the stimulating effects of certain substances, gaseous or solid, dissolved in the water.

The distinction that has sometimes been drawn between "artificial" and "telluric" heat is idle. As Huggard well remarks, the accident of being heated in the bowels of the earth instead of in a kettle does not in the smallest degree affect the character of the water. The only advantage of such waters is the convenience that arises from a large supply at uniform temperature. The reviving and stimulating action of hot water, administered internally, is very striking, and is utilised in post-operative management. The action of *cold* water is of the highest importance, and is of great hygienic and therapeutic value, but I will not now enter into it. Neither is there time to discuss the respective therapeutics of hot water and hot air. I may, however, point out that the removal of fluid from the body, even in cases of advanced dropsy, may not be an unmixed good, unless the warm bath is followed by a diuretic action. For, unless the toxic substances in the blood are also removed, the relative amount of toxins left behind in the blood and tissues will be greater, and so the last state of the patient may be worse than the first.

The supposed special virtues of sool-baths—*i.e.*, strong brine; of peat baths, and mud baths—*e.g.*, fango, a volcanic mud from Sicily—are simply reducible to slight variations in the stimulant action on the extensive sensory surface of the skin, one of high importance. Mud baths are to ordinary waters what brown bread is to white bread; they tickle more. Moreover, peat and mud baths are poorer conductors of heat than is water, so that both higher and lower temperatures can be borne without discomfort (Huggard).

As my remarks are purposely of a general nature, I shall

eschew all discussion of the magical potencies which are fathered upon this or that spring among the multitude of competing waters. One spring differeth from another spring in glory.

The vexed question whether there is any significant difference of effects between a water drunk in its natural home, and at a distance from its source, is largely and obviously answered by the varying accessories, attractions, and ordinances of the parent source.

The more important factors in mineral waters *quoad* therapeutics may be thus enumerated:—(1) Temperature. (2) Alkalinity. The assumed efficacy of lithia waters in gouty affections is more than problematical, and the best authorities disbelieve in it. The determination of the effects of alkalies on the chemical activities of the body opens up a large and obscure but, doubtless, highly important chapter in physiology. One of the chief aims of hydrotherapy is to control the reaction of the urine, with the object of decreasing or neutralising its acidity. But all reports upon change of reaction in the urine are to be accepted with considerable caution, for the simultaneous presence of weak acids and weak bases interferes with the reaction. Normal urine, even if it turns litmus distinctly red, may actually be less acid than one which does not act so markedly upon litmus (v. Noorden, *Metabolism and Pract. Med.*, III., p. 944). (3) Aperient action. This mainly depends upon the pressure of a sufficiency of the difficultly absorbable ion, SO_4. Were it not for purgative action mineral waters would be shorn of much of their talismanic virtues. (4) The presence of iron in appreciable amount. But we should remember that the average daily excretion of iron in the body is extremely small—viz., about 5 cgm., or $\frac{1}{12}$ grain. Moreover, chalybeate waters contain very little iron, equivalent to only 0.025 to 0.03 grm. per day. (5) Arsenic occupies a subordinate place in mineral waters. Val Sinestra water is the only one which contains arsenic without appreciable amount of iron. Ferro-arsenical waters are growing in favour, and do not seem to deteriorate when bottled so readily as carbonate of iron

waters. (6) Sulphur action. Only an infinitesimal quantity of sulphur is present even in the richest waters. Therapeutically, sulphur waters may be ranked as "indifferent waters," with a nasty smell and taste. There can, I think, be little doubt that their therapeutic value has been greatly overrated. (7) CO_2—*i.e.*, aerated waters. There is some evidence that such waters stimulate appetite and promote pancreatic digestion. (8) The flushing out of the kidneys and diuretic action. The famous Carlsbad Sprudel water is in no wise remarkable, except that it contains a considerable proportion of several salts, some more easily and some less easily absorbed, and hence it has the wider range of action.

Now, after this excursion into criticism—*i.e.*, the katabolic side of the argument—let us see what can be said on the other, the anabolic side, in explanation of the benefits which many sufferers undoubtedly experience from a so-called "cure" at a bath or "hydro."

The name of Carlsbad recalls to my memory the sanest and most rational exposition of this interesting topic which I have yet seen. I refer to two brilliant letters from that eccentric and talented man, the late Mr. Ernest Hart, published in the *Brit. Med. Jour.*, 1887, pp. 1065 and 1176, and entitled "Spray from the Carlsbad Sprudel." Some of his acute observations are well worth reproducing, and are of general application. At the outset the time-worn but inexhaustible fallacy of *post hoc* and *propter hoc* stares us in the face, and is the salvation of many baths and waters. "It leads by their mental proboscis files of afflicted invalids as well as of hypochondriacs in dreary processions, glass in hand, hour after hour, round and round the halls and colonnades of *Cur-Haüsen*, in which spout steaming Sprüdeln, or drip the saline streams of *Quelle* of every degree of mineralisation. It has lasted for centuries and will not die."

Some 30,000 persons more or less every year play their part as *Cur-Gasten* at Carlsbad with unchanging faith and invariable solemnity. There are twelve or fifteen different wells—all hot saline springs, their temperature accurately inscribed in Centigrade and Fahrenheit, and all containing

a certain amount of common salt, a little alkaline carbonate, and a small amount of sulphate of sodium.

Of course, as Mr. Hart points out, the club of "clinical experience" is ready with which to knock down any sceptic who dares to question such mystic data as "the hottest water is more constipating," the Sprudel is more "stimulating," and so forth.

Mr. Hart himself was emboldened to wander vaguely from one spring to another, and drank indiscriminately which ever came first, but he was never able to detect the slightest difference. For my own part, I am inclined to believe if all the fifteen springs of Carlsbad were put into a common stock-pot and duly ladled out to the clients, differently tinted, we will suppose, to retain the psychical influences of variety, that the positive therapeutic benefits of the waters would not be one whit materially lessened. Yet when patients are drafted from well to well, each varying infinitesimally from the other, is there really any difference deeper than that betwixt Tweedledum and Tweedledee? "The typical spring is the *Sprudel*, which spouts into air a steaming fountain, falling back into an ornate basin, and around which stand a little array of maidens, all singularly anæmic, and for the most part fearfully ugly, who, under the solemn superintendence of a portly beadle, put the drinking glasses of the file of *Cur-Gasten*, each in succession, into tin holders, mounted on long sticks, fill them from the Sprudel and hand them back."

The answer to the therapeutic problem is not to be found in trivial details of the specific virtues of the different springs, and the secret of success surely depends upon a summation of agencies of all sorts.

"A Carlsbad cure is a very complex therapeutic agent. It is a rest cure, a diet cure, an air cure, a music cure, an exercise cure, a mind cure and a body cure. Its efficiency is made up of a great many elements, which have by time, experience, liberal expenditure, and enlightened management, been brought together in aid of the natural treasures and territorial advantages of the place."

Special attention is paid to diet at Carlsbad, and the bill of fare provided is *Cur-gemäss*, under the direction of accomplished physicians. All practitioners, even the specialists, bewail the fact that the benefits of the waters in gastric disorders are only symptomatic and temporary, and that for the prevention or permanent cure of hyperacidity they are powerless. Careful and patient dieting, prevention of constipation and a generally healthy life are, in most cases, of infinitely more value (v. Noorden). In the statements about "metabolic activity" and its results in obesity, at Homburg, Kissingen, and Marienbad, an important *rôle* is assigned to the diarrhœa which is said to produce an increased output of oxidisable material. This astounding statement is opposed to common sense, and is not justified by science (v. Noorden).

What a well-organised system such as that at Carlsbad offers to its clients is this:—"It is made a matter of pleasant discipline to rise early and spend two or three hours at short intervals in gentle exercise under a pleasant climate, with a good amount of sunshine, amid surroundings which generally occupy the mind without anything which can approach excitement. . . . There are very few forms of gastric, intestinal, renal, and nervous cases which are not capable of being benefited by such a treatment, even if that were not at all mineralised. It is thus that the most various complaints and the most opposite morbid conditions are successfully treated by the Carlsbad cure." *Mutatis mutandis*, what is true of Carlsbad is true of other localities.

In default of these pleasant and essential accessories, with the manifold physical and psychical stimuli which they involve, it is vain to expect similar good results from waters, no matter how strongly mineralised and chemically attested, which are situated in places where these collateral advantages are denied by nature, by poverty, or by other adverse conditions.

ART. II.—*The Study of Developmental Abnormalities as an Aid to that of Human Embryology, based on Observations on a Persistent Left Superior Vena Cava.* By D. P. FITZGERALD, B.A., M.B., R.U.I.: Lecturer on Osteology, University College, Cork.

IT is probably the experience of most teachers of anatomy that it is not easy to get students to secure any real grasp of the facts of embryology, and that this is the case even where plentiful provision of sections and of the splendid models now to be found in most Schools of Medicine are at hand. The reason of this is quite obvious. It is due to the fact that students do not see for themselves the various stages which follow one another in the passage from the earlier to the later conditions of development. It occurs to me to suggest that a good deal can be done in the way of removing this difficulty by utilising the various abnormal conditions met with from time to time in the dissecting room and illustrated by specimens in our museums, for many of these abnormalities are nothing more nor less than object lessons of ordinarily transient conditions in human development. Thus, from a study of a specimen of cleft palate valuable lessons can be drawn as to the development of the hard palate and the nature and position of the intermaxillary bone; an example of Meckel's diverticulum will illustrate the position of the ductus omphalo-mesaraicus, and specimens of any of the various forms of pseudo-hermaphroditism will serve as texts for a discourse on the development of the external genitalia. To illustrate my meaning I desire to give a short account of a case of persistent left superior vena cava which has recently been met with in this dissecting room and the use which has been made with it in explaining the development of this part of the vascular system. The "subject" of examination was a well-formed male, aged fifty years, and with unusually large arteries generally. The presence of a left superior vena cava brought well into evidence that trend towards bilateral symmetry which usually results from developmental errors in the thoracic

cavity. A bilateral condition of viscera and other structures is pleasing, and it seems strange that we must attribute such a state in certain parts of the body to some deviation from the natural course of development.

The following diagrams will, I hope, make clear the process by which the rare occurrence of the anomaly under consideration can be explained, and I give them, not in the order corresponding to the natural course of events and that usually adopted by most writers, but in a sequence that, from experience, I am satisfied will be of some value for teaching purposes. The readiness with which the students in my anatomy classes followed the various phases leading *from* the developmental error to the early condition satisfied me that, by emphasising the facts they could observe for themselves in the direction of a careful examination of the abnormality, its anatomical relations and comparison with the opposite natural state, a gradual transition to the early fœtal state was more readily intelligible to them than if I had adopted the more usual (and more scientific) procedure of explaining the existing anomaly by tracing events *from* the embryonic type.

Diagram I. gives a representation of the condition met with in the cadaver above referred to. A vein, about one-third the diameter of the normal right superior vena cava began at the extreme left end of the left innominate vein, and passing almost vertically downwards in the superior mediastinum in front of the aortic arch, close to and slightly to the left of the vagus nerve, crossed in front of the root of the left lung, above which it received the vena azygos minor superior (this latter vein arching over the root of the lung). Then, turning inwards behind the left auricle, it expanded to nearly four times its calibre, and formed the coronary sinus which, normally placed, opened as usual into the right auricle.

My next diagram (II.) shows the changes leading to the normal condition of the parts. The greater part of the vein has become obliterated, the upper portion remaining pervious as the left superior intercostal vein, and the lower part as the coronary sinus and the oblique vein of Marshall. The occluded part is often represented by a fibrous cord ("vestigial fold of

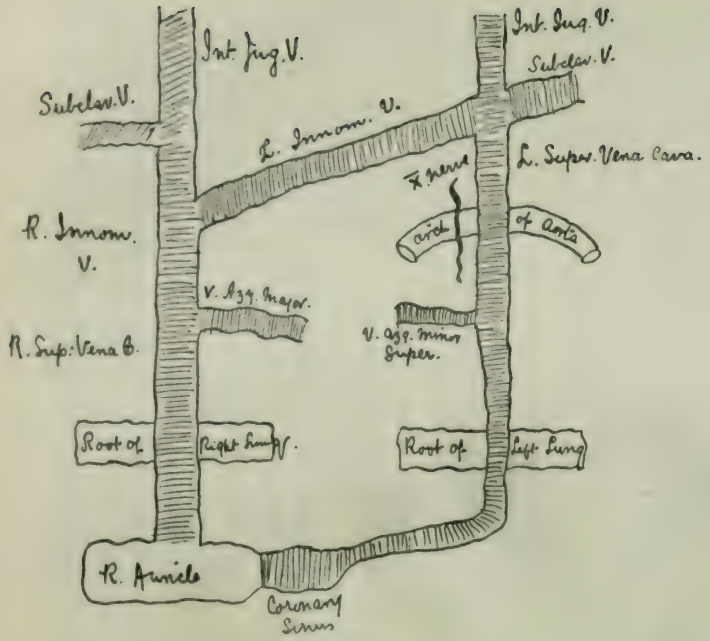

Diagram I.

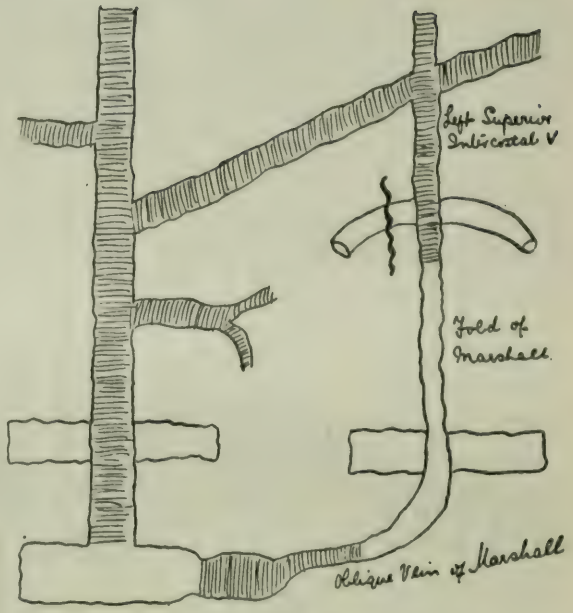

Diagram II.

Marshall ") stretching from the left innominate vein to the coronary sinus. This embryonic relic I have often seen.

Diagram III. shows another stage in the fœtal condition.

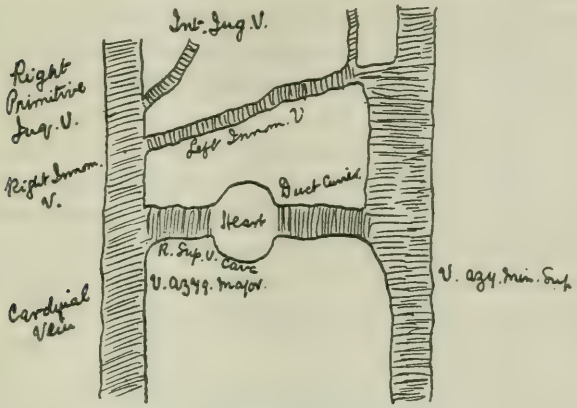

Diagram III.

Here we see the two internal jugular veins connected by a transverse branch—the future left innominate vein ; the lower part of the right primitive jugular forming the right innominate

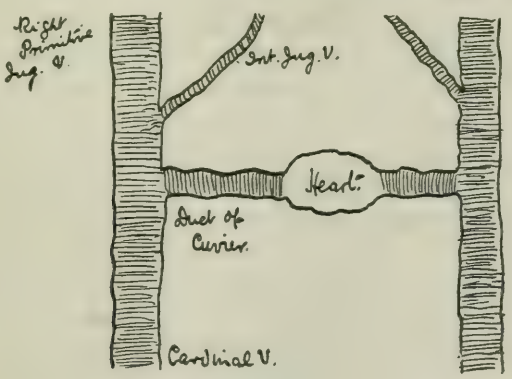

Diagram IV.

passing inwards to the heart as the right duct of Cuvier—the future right superior vena cava. We also observe the upper part of the right cardinal vein becoming the vena azygos

major. On the left side we note the upper part of the cardinal vein becoming the vena azygos minor superior ; and the lower part of the primitive jugular vein and the duct of Cuvier, the persistence of which gives rise to a left superior vena cava.

Diagram IV. shows a still earlier condition—viz., the two primitive jugulars, the forerunners mainly of the external jugulars ; the two cardinal veins and the Cuvierian veins opening into the heart.

Such a procedure of observations of this anomaly may help to some extent to a thorough understanding of the main changes in the fœtal condition that lead to normal developments, and may conduce to a clear grasp of the significance of the many abnormalities not infrequently met with in the disposition and relations of certain structures.

ART. III.—*A Study on Hand Sterilisation.* By CHARLES GREENE CUMSTON, M.D., Boston, Mass.

WHEN Lister published his first writings in 1867, which overthrew the then existing theories of the process of wound repair, it was supposed that the cause of suppuration was derived from the atmosphere, and that by excluding the entrance or contact with air the most minute vegetable organism causing decomposition, suppuration and wound infection would be prevented, as occurs in the healing of subcutaneous wounds. At the same time Lister pointed out a means by which an antiseptic action could be obtained—namely, the use of carbolic acid, by the virtue of which the bacteria contained in the air would be rendered harmless. Contact of the wound by the air containing the germ he endeavoured to prevent by surrounding the field of operation with a fine spray of the acid in solution. During the operation, as well as the dressings, the spray was kept in action, and in consequence of the unhoped for results obtained, made evident by a marked decrease in suppurative processes following operations, the method became rapidly adopted in all parts of the world.

After a time it became recognised that it was not by contact

of the air, but that a direct infection was the cause of suppuration in wounds, and that the causative factors could be found on the hands, instruments and dressings. For this reason the carbolic spray was done away with, and everything which could possibly come in contact with the wound was disinfected by means of a carbolic acid solution. The operator's hands, and those of his assistants, were disinfected with this chemical, and no object was allowed to come in contact with the field of operation which had not been previously treated with this substance. Here begins the study of hand disinfection, which, however, was not carried out methodically in the beginning, but after a time rules for sterilisation of the hands were formulated and the length of time of washing, the treatment with the carbolic acid solution, as well as the strength of the latter, were decided upon.

If the methods used at this time can be really called hand disinfection, it may be said that the most remote method consisted in the following steps—namely, washing the hands with soap and water, and then dipping them into a solution of carbolic acid.

In 1880, Floystrup made a report on disinfection of the hands in obstetric practice as employed in the maternity at Copenhagen. Before delivering a patient the hands were washed with soap and water, scrubbed with a nail brush, and then dried, after which they were immersed for a short time in a 2 per cent. carbolic solution, while the examining finger was lubricated with salicylic oil and the hand again immersed in the carbolic solution. It was then directly passed into the vagina, care being taken that it did not come into contact with anything which had not been disinfected.

Definite rules concerning the duration of the disinfection and its separate stages were not at first formulated, but we find rules concerning carbolic acid, which was applied in various solutions, varying in strength from 2 to 5 per cent. Furbringer recommended a 3 per cent., Mikulicz a 4½ per cent., and Kummell a 5 per cent. solution.

As a result of the well-known writings of Koch relative to disinfection, in which he made evident the much greater

disinfecting power of mercury bichloride as compared with carbolic acid, a general introduction and use of this latter substance followed, and it was employed in conjunction with, or in the place of, the acid.

According to these researches a 1 : 3000 solution of sublimate will kill anthrax spores, while their development is retarded in a 1 : 5000 solution. This great bactericidal power led Bardeleden, in 1882, to introduce a 1 : 1000 solution of bichloride for the disinfection of the hands in place of carbolic acid.

A definite result in hand sterilisation was not, however, worked out until 1885, when Kummell took up the question experimentally and developed it from a bacteriological standpoint. He infected his hands with various material, as, for example, making an autopsy of a case of puerperal peritonitis, and he inoculated culture media after they had been thoroughly disinfected and were still in a moist condition. If no growth resulted he very naturally concluded that it was the direct result of the method of sterilisation.

As a result of his experiments he believed that the hands, although in contact for a considerable length of time with infectious material, could be rendered sterile upon the condition that great care be taken in the use of antiseptic solutions. In the majority of cases he was able to obtain a satisfactory sterilisation of the hands by carrying out the following method:—First, thoroughly scrubbing with warm water and soap, carefully cleansing each finger and the folds of the skin, the scrubbing process to be carried out for five minutes with a sterile brush and potash soap preferably, the water being as hot as the hand can stand. Secondly, the scrubbing in a 6 per cent. thymol solution, a 1 : 1000 sublimate solution, or a 3 per cent. carbolic solution. In order to obtain an absolutely certain result he pointed out that a 5 per cent. carbolic solution should be used for two minutes, or in its stead a freshly prepared 50 per cent. lime water.

Forster, contrary to Kummell, insists upon disinfection of the hands with water, soap, and a solution of sublimate at the strength of 1 : 500 or 1 : 1000, and he believes that a perfectly

satisfactory result may be thus obtained. His experiments differed essentially from those carried out by Kummell, inasmuch as he dried his hands with a sterile towel or gauze after disinfection, before inoculating the culture media, whereas the former surgeon introduced his hands still moist with the disinfecting material on the gelatine.

In 1887 disinfection with sublimate was modified by Leopold, who employed the following technique:—First, the hands and arms were thoroughly cleansed before and after each examination for at least five minutes with brush, soap and warm water. Secondly, scrubbing for three minutes with warm sublimate solution at the strength of 1 : 2000 with soap and brush. Thirdly, immersing for half a minute in a fresh 1 : 1000 sublimate solution. He particularly emphasised the importance of a preliminary and prolonged washing in warm water, and he believed, from his experience, that the hands were disinfected with much greater certainty if they were, in the first place, thoroughly prepared by a prolonged soaking in water, removal of the fatty secretions, and brushing off the superficial epidermis. It was only after this process that he exposed his hands and arms to the action of the disinfecting agent, rather than combining the latter with the soap and water.

A complete revolution in the technique of disinfection occurred in the same year, when Furbringer published his researches and methods. He conclusively demonstrated that disinfection as practised up to that time did not completely remove the bacteria from the hands, and he drew particular attention to the subungual region and the free border of the nails, and pointed out that this is the most difficult portion of the hand to render sterile. He brought forward experimental bacteriological proof of the advantages of his manner of proceeding, in that one should first brush the space below the nail with a thin wire file sterilised in a flame, then cleansing with a wooden nail cleaner, and after this gelatine tubes were inoculated. The chief merit, however, of his work lies in the fact that he pointed out the important part played by alcohol in hand sterilisation.

It is quite true that Braun had resorted to the use of alcohol for ten years previous to Furbringer's writings, but, for all that, the latter certainly deserves the credit of having been the first to introduce it into general surgical practice, to have pointed out its important points, and to have instituted a new and very greatly improved technique of hand disinfection. He also pointed out that the selection of the disinfecting agent is of far less importance in sterilisation of the skin than is the preparation of the skin—a fact in which I can thoroughly coincide. The result depends above all upon obtaining a direct actual contact of the disinfecting agent with the epidermis. The dryness of the skin and the fat present in the epidermis generally prevent direct contact with the antiseptic agent upon it, but by the addition of alcohol contact and deep penetration of the disinfectant is obtained while the skin is moist and saturated. This action of alcohol is due to its fat-absorbing and water-combining properties, and basing his assertions on these considerations he recommended the use of alcohol after mechanical cleansing of the skin and before the use of the chemical agent. His technique is as follows:—First, the nails are freed from all visible dirt in a dry condition. Secondly, the hands and arms are thoroughly scrubbed for one minute with soap and very hot water, special care being given to the spaces behind and around the nails. Thirdly, washing for one minute in alcohol at the strength of not less than 80 per cent., and then before it has become evaporated the hands and arms are immediately immersed in a 3 per cent. carbolic solution, or a 1 : 500 solution of sublimate for one minute. As a special advantage of this method, Furbringer emphasises the certainty of the results obtained, the great saving of time, the harmless action of the chemical on the hands, as well as the low price of sublimate.

Landsberg came to some unexpected results in his experimental work on hand sterilisation—results which appeared to be entirely different from those previously obtained. None of the methods which had been described up to that time gave him any positive results, and he decried the use of alcohol, because he showed that it occasionally gave rise to paræsthesia

of the hands. He believed that the certainty of the disinfection is very variable according to the individual, and its success depends more or less upon an energetic management of the technique. As a result of his experiments, he comes to the conclusion that simple scrubbing in warm water, soap and sublimate are of quite as much value as all the other procedures of sterilisation, including the use of alcohol.

In 1890 Boll published his experiments on hand sterilisation, which were undertaken at the Königsberg Clinic, together with those methods which had been introduced and followed for the previous five years by Mikulicz, after having infected the hands with pure cultures of the *Staphylococcus pyogenes aureus*. He obtained the best results when Mikulicz' technique was employed, which is as follows:—First, removing all visible dirt from the nails. Secondly, scrubbing the hands for three minutes in warm water and potash soap. Thirdly, washing for half a minute in a 3 per cent. carbolic solution; in cases of laparotomy using a 5 per cent. solution, and then in a 1 : 2000 sublimate solution. Fourthly, carefully rubbing the spaces behind and around the nails with a 10 per cent. iodoform gauze which has previously been placed in a 5 per cent. carbolic solution for one minute.

Boll was loud in his praises of the certainty of this procedure, which is obtained by the use of two powerful antiseptics, but he also points out the great importance of rubbing the subungual spaces with moist iodoform gauze, because in two experiments where this was omitted he obtained growths.

The differences in the results of the various researches, which in all probability depended, to a great extent, upon the disparity of the techniques employed, led Reinicke to employ other bacteriological methods. He infected his hands with the spores of the potato bacillus and *Bacillus pyocyaneus*, and then inoculated the culture media according to Furbringer's method. He attempted disinfection with soap and water without any result, as well as after scrubbing the hands with pumice, and he came to the conclusion that the skin could never be rendered free from bacteria. With a carbolic or sublimate solution, lime water, lysol and trikesol, he obtained a complete disinfec-

tion, but the results reached by using the method advocated by Furbringer were not satisfactory. He then increased the duration of the scrubbing to ten minutes, immersed the hands and arms in 90 per cent. of alcohol for two minutes, and then for three minutes in sublimate or lysol, and even then he was able to grow isolated colonies on the media inoculated.

He then found that after the use of alcohol a complete sterilisation of the skin is obtained, and he explained this happy action of the alcohol as follows :—By dissolving the fat in the skin the bacteria contained therein became detached and were washed away from the lower epidermic layers mechanically, while at the same time the fatty secretions in which the germs are embedded were removed. With an alcoholic soap he was unable to obtain the same results, and he had just as little success with the use of ether instead of alcohol. He therefore arrived at the conclusion that by scrubbing the hands for five minutes with a brush in hot water and soap, and then scrubbing from three to five minutes in alcohol and rinsing them off in some antiseptic solution, one may obtain in all probability a complete sterilisation of the skin, and in this respect he points out that it is quite possible that, merely scrubbing in alcohol for five minutes without any previous mechanical cleansing, a perfect sterilisation may be obtained.

Believing that the results obtained by Reinicke were unreliable, Krönig carried out his experiments after infection of the skin with anthrax spores. With bacteria of such resisting power the results would be more reliable, because there is no reason to expect lesser claims for methods of hand disinfection, and also because he did not wish to admit animal experimentation in obtaining the proof of the results by this method. He called attention to the fact that, as had been shown in Gärtner's experiments, bacteria smeared intentionally on the hands can be more readily removed from the skin than those living in its lower layers, and he raises the objection that the former worked with organisms having a resistance which does not normally occur, and that consequently it is not a fair test.

According to his way of thinking shrinking of the cutaneous surface is produced by alcohol, and so the removal of the bacteria contained in the folds of the skin is prevented. Even with sublimate it is impossible to obtain a complete removal of the bacteria, because this chemical appears to enter into a close chemical combination with the epidermis, resulting in a deposit of mercury albuminate, which cannot be removed on account of the resulting precipitation, and thus the bacteria seated in the deeper layers cannot be reached and destroyed. In spite of all this Krönig advocates the sublimate method, because, although the results obtained are incomplete, he, nevertheless, thought it the best.

Ahlfeld again took up the experiments of Reinicke and found that, as the latter authority had already pointed out, it is impossible to obtain perfect sterilisation by means of disinfectants; while, on the other hand, by employing 90 per cent. alcohol a complete removal of the bacteria is in all probability obtained. He laid special stress on the disinfecting and bactericidal power of alcohol, which, however, only exists when the bacteria present are water-containing. In order to place them in this condition a thorough scrubbing of the skin with brush, warm water and soap is essential, and it is only after this preparation that the action of alcohol can come into play, and it is in fact the water-withdrawing property of alcohol which plays the principal part in the development of its bactericidal action. He recommends simply cleansing the hands, keeping the nails cut short, and avoiding all contact with septic material and formulates the following rules:— First, cutting, trimming and cleansing the nails. Secondly, scrubbing for three minutes in hot water with nail brush and soap, and then rinsing off in clean water. Thirdly, rubbing the hands with a flannel cloth wet in a 96 per cent. alcohol.

In cases where the hand is rough and septic, and consequently difficult to disinfect, he recommends a more severe cleansing, as follows:—First, washing the hand and arm for at least five minutes with brush, soap and hot water; cleansing the nails must be done before and again during the scrubbing. Secondly, scrubbing the arms and hands and each

separate finger for five minutes, and then rubbing with a flannel wet with 96 per cent. alcohol. If these means be carried out an obstetrical examination or operation may be undertaken with safety. From a large number of experiments Ahlfeld was able to demonstrate the advantages of this method over those previously used, especially in instances where the hands are rough and neglected, so that easy and safe results were obtained. He also points out its great simplicity. This method has been employed by a large number of surgeons.

Stimulated by Ahlfeld's experiments Furbringer theoretically again took up the question of alcohol, and he came to the same conclusions relative to its bactericidal power. On the other hand, he insisted upon the fat removing action of alcohol, and is of the opinion that it is not advantageous to omit the use of some antiseptic after alcohol has been used.

From these experiments, which he undertook in conjunction with Freyhan, he comes to the conclusion that his original rules for disinfecting—namely, one minute scrubbing, one minute in alcohol, and one minute in sublimate—is not sufficient.

As opinions differed concerning the use of alcohol a number of changes were made and recommended in Furbringer's method, as might be anticipated. In 1896 Knoblanck published the following methods of hand sterilisation used in the Berlin Gynæcological Clinic :—First, scrubbing in hot water ; secondly, drying and carefully cleansing the nails ; thirdly, scrubbing for three minutes in hot water and soap ; fourthly, scrubbing the hands for one minute with alcohol ; and fifthly, scrubbing for two minutes in a sublimate solution.

Schaeffer gives the following length of time for the various steps in Furbringer's method :—First, five minutes for the mechanical cleansing with brush, soap and water ; secondly, brushing for three minutes in alcohol ; and thirdly, from one to two minutes in a 1 : 1000 sublimate solution.

Tjaden endeavoured to obtain surer results in disinfection by immersing the hands in alcohol after having scrubbed in a sublimate solution and again scrubbing them in sublimate, so

that his method consists in—first, scrubbing the hands with brush, soap and water; secondly, scrubbing in alcohol; thirdly, scrubbing in sublimate solution; fourthly, again immersing in alcohol; and fifthly, again rinsing in sublimate.

During the winter of 1897 Mikulicz employed the following process for hand sterilisation:—First, washing in soap and water for from three to five minutes; secondly, treating the hands for from one to two minutes in alcohol; and thirdly, rinsing them in a 1:1000 sublimate solution for from two to three minutes. However, becoming dissatisfied with the results obtained, he resorted to Furbringer's method, using the following modification:—First, washing in hot running water with soap and a piece of sterilised wood; secondly, cleaning the nails; thirdly, scrubbing with sterile brush in hot running water and soap; fourthly, scrubbing in 70 per cent. alcohol; fifthly, rinsing in a 1 per cent. lysol or a 1:1000 sublimate solution; and sixthly, dipping the fingers in tincture of iodine and rinsing in lysol.

Up to the beginning of 1900 Tillmanns employed various methods of hand sterilisation, and at length reached excellent results, which appeared to be due to improvements made in Furbringer's method. His technique was as follows:—First, dry cleaning of the nails and trimming with scissors; secondly, scrubbing the hands and forearms with brush, soap and water at 35° C.; thirdly, rubbing the hands for one minute with 50 per cent. alcohol, and before this evaporates scrubbing three minutes in a hot 1:1000 sublimate solution, and finally rubbing with sterile gauze moistened in this solution.

Space forbids considering all the various details of the many modifications of Furbringer's method, and it may be rightly said that almost every surgeon has laid down rules of his own; but, nevertheless, the fact remains that all recognised and essential improvements in the results of disinfection have been obtained by the addition of alcohol, and accordingly much importance has been given to its bactericidal power. The individual changes are merely in the length of time that the alcohol is to be applied, and its strength.

At the International Congress of Gynæcology and Obstetrics

held at Amsterdam in 1899 I presented a short paper entitled "La technique de l'antisepsie et de l'asepsie en chirurgie gynécologique," in which I briefly described the technique that I employed for the preparation for the hands and arms, as follows:—Scrubbing of the hands and forearm well above the elbow for ten minutes with brush, hot water and green soap, during which the water should be changed four or five times, and I insisted particularly on this latter process. After scrubbing, the hands and arms are washed off with ether and then scrubbed in 90 per cent. alcohol; after which the same process is carried on in a 1 : 2000 sublimate solution, followed by rinsing off in sterile water. I also insisted upon the fact that the nails should be cut so short that none remained to be cleaned, and I also maintained that if this precaution were taken much trouble could be avoided. I have employed this technique for the past ten years, with the exception that for the last four I have used mercury cyanide in place of the sublimate, the advantages of which I shall endeavour to point out at the end of this paper.

Opponents to the use of alcohol have by no means been lacking, and who believe that it is of no value whatsoever, and consequently are decidedly against its use. Among them may be mentioned Kronig, Sanger and Zweifel. Within the last few years Kronig and Blumberg published some new experiments concerning hand sterilisation, in which they infected the skin with the *Bacillus tetragenus*. The best results were obtained after the following technique had been employed:—First, scrubbing for five minutes with brush, water and green soap; secondly, washing for three minutes with a 1 per cent. solution of mercury ethylendiamin. This latter product is prepared as follows:—Ethylendiamin, 4 grammes; mercury citrate, 10 grammes; and water, 86 grammes. After employing this method these authorities were unable to kill any mice inoculated from their hands; whereas, with Ahlfeld's technique, with hot water and alcohol, the animals showed a positive result eight times out of twelve. For this reason this preparation of mercury was introduced into the Leipzig Gynæcological Clinic at the strength of 1 : 300;

it is said to produce no irritation, and may even be applied in a much more concentrated form without harm.

The techniques employed up to this time show two manners of proceeding—namely, mechanical cleansing and disinfection with various chemical products. In his most recent technique Mikulicz believes that by combining alcohol and soap a preliminary washing with water is needless, since it does not increase the action of the disinfectant employed. In other words, he combines the use of soap and alcohol in one act. For this purpose he uses the official spirits of soap, and he emphasises the special advantages of this procedure, the absence of any odour and non-toxic properties, as well as its excellent action on the skin, and the great saving of time. Culture tests showed that by this technique the results attained were better than any others which had been experimented with up to this time. The method is as follows :—Macroscopically soiled hands are rubbed with gauze dipped in spirits of soap; then with a Braatz nail cleaner the subungual spaces are thoroughly scraped, and then the hands are brushed for five minutes with a sterile brush and spirits of soap.

At the German Surgical Congress held in 1900 Vollbrecht related some experiments which he had made with spirits of soap in a fixed form. Every sodium soap is not easily combined with alcohol, and he points out the best soda soaps are those made up of fixed fats and the addition of alcohol; the latter may even be used in very large quantities. With this compound alcoholic soap disinfection of the skin is obtained without the use of water, the soap being merely put on a sterile brush and the hands and arms scrubbed with it for five minutes. As the alcohol slowly evaporates a small deposit of soap remains on the skin, but which does not make the hands slippery. Vollbrecht lays special stress on the cheapness of this method, since the quantity of alcoholic soap necessary for this technique only amounts to about 2 per cent., and he calls special attention to its use in military surgery, and places the method, as far as its results are concerned, on a par with those advocated by Furbringer and Mikulicz.

Tillmanns perfected a new procedure for hand sterilisation,

based upon the latest investigations on skin disinfection. He gives special attention to the fact brought forward by Kronig and Paul that the bactericidal properties of a watery solution of mercury bichloride become considerably increased by the addition of ethyl- and methyl-alcohol, as well as by acetone. He also uses alcoholic soap for mechanical cleansing, with a purpose of combining the fat-dissolving property of the alcohol with the action of the soap. A repeated disinfection should be effected with alcohol, because by its penetration into the epidermis it prepares the latter for further disinfection in an alcoholic sublimate solution. The latter is composed of a 1 : 1000 watery solution of sublimate containing 20 per cent. alcohol. The steps of the procedure are as follow:— First, dry cleansing of the nails and folds of the skin with sterilised nail cleaner and scissors; secondly, scrubbing the hands and forearms with brush, alcoholic soap and tepid water; thirdly, a second thorough cleansing of the hands and forearms with fresh alcoholic soap; fourthly, immediate scrubbing of the hands and forearms with the above-mentioned alcoholic sublimate solution; fifthly, rubbing the hands, and especially the finger tips, with sterile gauze wet with this solution. The advantages claimed for this method consist chiefly in the absolute certainty of the result and the great saving of time, which only amounts to about five minutes.

Beside the above-mentioned techniques in which the antiseptic employed is used in a liquid form, a number of others have been put forward in which a gas-forming action is supposed to take place. From the knowledge so far obtained it has been surmised that it is quite impossible, even with the most careful preparation of the skin, to reach the deep-lying bacteria with a watery solution.

Weir tested alcohol and sublimate disinfection experimentally, and came to the conclusion that they were insufficient; while, on the other hand, he obtained good results by the following method:— First, cleaning the nails and scrubbing with soap and water; secondly, a few crystals of carbonate of sodium are taken in the hand to which one teaspoon of chloride of lime is added, and then the same amount of water, so that

a paste is formed. With this he rubs the nails, hands and forearms for from two to three minutes, until the feeling of warmth changes to that of cold and the small particles of calcium chloride have become completely absorbed. The hands are then rinsed off in sterile water or a sublimate solution.

As far back as 1892 Robb demonstrated and practised a method which has had a number of warm advocates. The technique of the method, as supposedly improved by Kronig, is as follows :—After cutting and cleaning the nails, the hands and forearms are washed for eight minutes in water at 35° C. They are then immersed for three minutes in a 1 per cent. solution of potassium permanganate, to which is added a 0.5 per cent. of chlorine water. They are next soaked in a 1.3 per cent. oxalic acid solution ; and lastly they are rinsed off in sterile water or sublimate solution.

A method similar to this was advocated by Senger in 1899, which, beside chemical cleansing, possessed an active sterilising power, by employing two bactericidal bodies, which combined chemically and again developed bactericidal properties, which are especially marked when the chemical combination is nascent. The technique is as follows :—First, cleansing the nails and scrubbing with soap and water ; secondly, disinfection for two minutes in a 2 per cent. to 5 per cent. warm hydrochloric acid solution ; thirdly, the application for one minute of a 0.5 per cent. to 5 per cent. warm solution of potassium permanganate ; and fourthly, removal of the latter by means of sulphuric acid.

The very varied methods of hand sterilisation are due to the fact that the results obtained were not favourable, and from numerous researches on the subject performed under the most varied forms of experimentation and conditions, has led to the conclusion that it is most difficult, perhaps even practically impossible, to absolutely remove all bacteria from the skin. The reason for this is simply due to the nature and structure of the skin, which does not possess a smooth, even surface, and in its folds bacteria become located and are inaccessible to the action of mechanical and chemical cleansing. In order to

fill the sulci in the skin, and to render its surface smooth, also to prevent access of bacteria by means of a protective covering applied to the cutaneous surface, was the object to be attained by the following technique, advocated by Schleich. For this purpose he recommended marble dust soap, which is made as follows:—Ordinary soap is liquefied and three times the volume of powdered marble dust is mixed with it, and a 4 per cent. lysol solution is then added; it also contains some of Schleich's wax paste. It is his opinion that by scrubbing with this soap the skin is both cleansed and sterilised at the same time; all existing fissures are filled with the wax, while the sterilised hand is at the same time supplied with a protective covering. How far the object in view has been obtained by means of this process will be referred to later on.

A similar method for protecting the hands has been introduced by Menge, but he starts out with the supposition that alcohol deprives the skin of its water, thus causing the superficial layers of the epidermis to shrink, and is thus the means of fixing the bacteria which are not killed in the deeper layers. Evaporation of the alcohol must be prevented, as well as saturating the skin with water, in order to obviate any swelling up, thus bringing the bacteria to the surface, and in his way of thinking this is suitably accomplished by using a paraffin covering, the technique being as follows:—First, mechanical cleansing with brush, potash soap and water; secondly, disinfection in a watery or alcoholic solution, containing a small proportion of alcohol; thirdly, washing in 70 per cent. alcohol and drying on a sterile cloth; fourthly, a sterile paraffin-xylol solution is poured on and is allowed to dry.

In 1899 Bartlett published a process which is much like the two above-mentioned methods, and by which all bacteria in the skin were supposed to be prevented from coming in contact with the operative wound, and for this purpose he recommends the following:—First, cleansing with brush, soap and hot water; secondly, lubricating the skin with sterile vaseline, care being taken to fill up all the folds and subungual spaces; thirdly, immersing the hands in some antiseptic solution.

It is only recently that a number of so-called skin varnishes have been recommended to take the place of the fat-containing pastes. These chiefly consist of solutions of gums and oils in alcohol or ether, which, after evaporation, leave behind a smooth, impermeable covering. Such a solution was patented under the name of Chirol, manufactured by a German firm, and highly recommended by Kossmann. It is a yellow liquid, into which a thoroughly disinfected and absolutely dry hand is immersed for a few seconds, and which dries in about two or three minutes. A fine skin is formed, which does not stick nor interfere with the sense of touch and motion of the finger; it is said not to crack, and is easily removed with alcohol. It is supposed not to be affected by water, sublimate or formalin solutions, but it does not withstand contact with lysol.

Levai introduced a similar varnish, which has the advantage over the former in that it is much cheaper and can be made by everybody. The formula is—two parts by weight of copal, four parts Venetian turpentine, which are melted together; one hundred parts each by weight of sulphuric ether and common collodion, and eight parts by weight of acetone. Contrary to Chirol, copal varnish is brushed on the skin, and thus an even covering is obtained, which can be removed easily by rubbing with gauze moistened in a mixture of two parts ether and one of alcohol.

The above-mentioned methods cannot be termed skin sterilising, properly speaking, because they merely form a protection, and are possessed of no bactericidal action. They merely prevent direct contact of the skin with the wound, and thus obviate inoculating the bacteria contained in the epidermis. Consequently, when closely considered, they merely represent prophylactic measures, while in action they are the same as rubber gloves.

(To be continued.)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Rectum: Its Diseases and Developmental Defects. By Sir Charles B. Ball, M.Ch., F.R.C.S.I., Hon. F.R.C.S. Eng., Regius Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital; Hon. Surgeon to the King. London: Henry Frowde; Hodder & Stoughton. Oxford: University Press. 1908. Pp. 332.

This is without doubt the best of the fine series of medical and surgical works recently issued from the Oxford University Press known as "The Oxford Medical Publications." The work is the outcome of the course of Lane Lectures on Diseases of the Rectum delivered at San Francisco in 1902, and the Erasmus Wilson Lectures on Adenoma and Adeno-Carcinoma of the Rectum, delivered at the Royal College of Surgeons, England, in 1903, by the author.

The book opens with a fine chapter on the anatomy of the rectum and anus. In Chapters II. and III. will be found an account of the development of the rectum and anus—the developmental defects and varieties. Full justice is done to Wood-Jones's work in connection with the origin or explanation of the various developmental defects. These chapters we consider the most comprehensive and clearest upon this interesting and important subject we have yet had the pleasure of reading, and the illustrations explanatory of the text and of the varieties of developmental errors described are beautifully chosen from an instructive and practical point of view. The treatment of these errors in development is shortly described in Chapter IV.

Chapter V. is devoted to a description of the diagnosis of rectal disease. As one would naturally expect from a surgeon of the author's experience, but little reliance is placed upon the use of the speculum as an aid to diagnosis. Indeed, the author tells us more information is to be gained from an

intelligent and educated use of the finger than from any other of the newer methods so much sought after by some members of the profession.

In Chapter VI. will be found a description of the infective diseases and their treatment, while Chapter VII., which is a short one, gives an account of ulceration (simple, follicular, and ulcers in the sinus of Morgagni).

The chapter on fistula comes next, and consists of some twenty-four pages; while Chapters IX. and X. are devoted to a general consideration of rectal stricture and its treatment. Irritable ulcer or fissure is described in Chapter XI. Its symptoms are graphically detailed, and the author's explanation of its origin seems satisfactory and to have received considerable support from other surgeons. The treatment is both simple and efficient.

Chapter XII. is devoted to prolapse of the rectum, its ætiology, varieties, complications and treatment, and leaves nothing to be desired.

The chapters on piles are very full and complete, and a very lucid description of the author's simple and effectual operation for the cure of internal piles is given. The illustrations of the stages in the performance of the operation, indeed, render a description of the operation in the text rather a work of supererogation.

Benign tumours are described and abundantly illustrated in Chapter XVI.

Chapters XVII., XVIII. and XIX. are devoted to a description of cancer of the rectum and its treatment. It is in connection with this subject that most work has been done during recent years, and the author does ample justice to these advances in our operative technique. The perineal, sacral, vaginal, and abdominal routes are clearly and fully described and beautifully illustrated. There is, however, one omission—there is no reference to the paper by B. G. A. Moynihan in the *Journal of Surgery, Gynæcology and Obstetrics* for May, 1908, entitled "The Surgical Treatment of Cancer of the Sigmoid Flexure and Rectum," in which an operation is described, based upon the same logical principles which govern us in operations upon the breast for cancer. It is, however, extremely probable that the proof-sheets of this

work were passing through the Press, if, indeed, they had not already done so, before Mr. Moynihan's paper appeared, otherwise we feel sure it would not have escaped the author's observation and criticism. The operation to which we refer we have no doubt will have a far-reaching effect.

Chapter XX. is devoted to colotomy, both as a temporary and permanent procedure.

Chapters XXI. to XXV., inclusive, are devoted to foreign bodies in the rectum, injuries, neuroses, pruritus ani, and diverticula. In the chapter on that extremely troublesome and irritating condition, pruritus ani, will be found a full description of the author's ingenious operation for its cure in intractable cases.

A complete index closes the volume.

The work is, without exception, the most authoritative and eminently practical treatise upon the important subject of rectal diseases in the English language, and stamps its author as one of the foremost exponents of this branch of surgery. It is a credit to the University in which the author so worthily occupies the distinguished position of Regius Professor of Surgery. The illustrations, which are, for the most part, from stereo-photographs, and are most excellently reproduced, are amongst the most striking features of an excellent work. There are no less than 181 of these beautiful illustrations, and some of the drawings are perfect works of art and yet faithful representations of the features and conditions they depict. The publishers are to be congratulated on their part in the production of the book. The price at first sight seems high—viz., 30s.—but we can assure our readers that they will secure full value for their money.

A Short Practice of Midwifery for Nurses. By Henry Jellett, M.D., F.R.C.P.I. Third Edition. London: J. & A. Churchill. 1908.

We congratulate Dr. Jellett upon his "Short Practice of Midwifery for Nurses" having reached a third edition. This book has met with such success that it seems almost unnecessary to recommend it. The author has given to nurses a book admirably adapted to their wants. The text is very clear,

and the illustrations are numerous and explicit. Perhaps it may be said that the book contains more than a nurse need know, but, as the author points out in his preface, "causes must be explained and methods of treatment given which it is not for a nurse to carry out, but which it is necessary for her to understand.

The Regulations of the Central Midwives' Board have been added for the benefit of those nurses who are desirous of obtaining the diploma of that body. Dr. Jellett has further added a few remarks upon cancer of the uterus and the necessity for early treatment; this will, it is certain, bear good fruit. Nurses have it in their power to reduce directly the terrible death-rate following upon operative measures for the removal of cancerous uteri by urging patients to seek advice and by suggesting a medical examination with a view to an early diagnosis when suspicious symptoms arise.

YEAR-BOOKS FOR 1909.

1. *Who's Who, 1909.* London: Adam & Charles Black. 1909. Cr. 8vo. Pp. xxiv + 2110.

2. *Who's Who Year-Book, 1909.* London: Adam & Charles Black. 1909. Cr. 8vo. Pp. vi + 154.

3. *The Writers' and Artists' Year-Book, 1909.* London: Adam & Charles Black. Cr. 8vo. Pp. vi + 118.

4. *The Englishwoman's Year-Book and Directory, 1909.* Edited by G. E. Mitton. Twenty-eighth year of issue. London: Adam & Charles Black. 1909. Cr. 8vo. Pp. xxvi + 372.

5. *Wellcome's Photographic Exposure Record and Diary, 1909.* London: Burroughs, Wellcome & Co.

1. "Who's Who, 1909," needs no word of commendation from us. The volume now includes more than two thousand closely printed pages of biographies—chiefly autobiographies. It is almost indispensable to anyone requiring information about contemporary men and letters. Glancing through its pages the casual reader might think that he had detected certain omissions, but the publishers, in their "advertisement,"

distinctly state that occurrences of a later date than September 30, 1908, are not recorded. Hence the Birthday List of Honours published on November 9, 1908, finds no place in the present issue. It might be well in future editions to give in an appendix occurrences up to November 15.

2. The "Who's Who Year-Book" contains the Tables which were the original nucleus of "Who's Who," and which were formerly such a popular feature in that work. Several new tables appear in the present edition, for which they have been specially compiled. Among them are lists of Newdigate Prizemen, Nobel Prize Winners, Married Daughters of Peers, and "Winning Owners."

3. "The Writers' and Artists' Year-Book" forms a handy directory for all who are interested in literature and art. It contains a long list of journals and magazines published in the United Kingdom, giving necessary details in most cases. Then follow lists of syndicates for MSS., literary agents and art agents. A list of American journals and magazines occupies some fourteen pages. There are also lists of publishers, American publishers, colour printers, press cutting agencies, photographers, &c. The book ends with a classified index of papers and magazines, and a guide to authors in the matter of correcting proofs for press—the last item being inserted by kind permission of Messrs. Neill & Co., printers, Edinburgh.

4. The mantle of Miss Emily Janes, until lately the Editor of "The Englishwoman's Year-Book," has fallen upon G. E. Mitton, who is indeed a "gem" of an Editor. The work is indeed a "directory," for it abounds with information of all kinds, and with sound advice. On the latter point witness the following paragraph:—"Translation. This occupation is not to be recommended, as the work is very poorly paid, and the market is quite overstocked with women who will translate French and German, while the more difficult languages are left alone. Very few indeed are competent to do first-class work. Prices depend entirely on the class of work. It is a usual thing to pay for ordinary novels and belles lettres

something like nine shillings a thousand words, but this depends on the language translated."

There is little to criticise adversely in this generally useful work, but we must enter a word of protest against the very misleading section on Irish Universities which appears at page 12. The section is headed "Dublin University," and these words are immediately followed by a paragraph descriptive of the "New Universities established by the Irish Universities Act, 1908." The ancient and famous University of Dublin, "or Trinity College, Dublin," is dismissed in a second paragraph of eight lines without any allusion to the fact that for the past five years its lectures, examinations, and degrees have been freely open to women. A much longer paragraph, running to eighty-seven lines in all, is devoted to the Royal University of Ireland, which, by the way, is wiped out of existence by the selfsame Irish Universities Act of 1908.

A full account of the Women's Suffrage movement will be found at page 222. It is evidently written by a woman and a sympathiser.

A guide to medicine, pharmacy and dentistry occupies twenty-three pages (128 to 150), and includes a list of "medical women."

5. "WELLCOME'S PHOTOGRAPHIC EXPOSURE RECORD AND DIARY FOR 1909" is an indispensable possession for the amateur photographer. It forms a compact, neat, and portable pocket-book and compendium of knowledge on all photographic points.

Britain Overseas. Part I. Nelson's Young Folks' Bookshelf. Vol. I. By. J. EDWARD PARROTT, M.A., LL.D. 1908.

"A GRAPHIC description of the British Empire—the story of how it was built up and how it is governed, of its countries, peoples, cities, and industries." So runs the title of this admirable work, which, if the first number now before us is to be taken as a criterion of the whole, should be an unbounded success. It is to be completed in ten fortnightly parts, each published at 2d., and is written in a bright and interesting style

which is certain to appeal to young folks, whose love of adventure is proverbial. In "Britain Overseas" they will find plenty of adventures, which, while reading like a fairy tale, have the added merit of being true. The chapters on "The Discovery of the New World" and on "Francis Drake, 'Sea Dog,'" are exciting enough to satisfy the most exacting. In the first copy are four coloured plates and several full-page illustrations, while numerous smaller drawings are scattered through its pages.

Medizinisches Literatur-u. Schriftsteller Vademecum, 1907–08. Herausgeber: H. ALBERT, Bibliograph. Franke und Scheibe, Hamburg. 1908. Alle Rechte vorbehalten. 8vo. Pp. x + 637.

THE Editor's object in compiling this useful International Medical Directory was to make his "Vademecum" a cosmopolitan book of reference on medical scientists and their writings. To attain this end he has evidently taken infinite trouble. Communications for, and contributions to, the work have reached him in fourteen different languages.

The Editor himself admits that his Directory is still imperfect, and he asks for further information and details.

The work is divided into five parts. The first gives an alphabetical list of medical authors, with their writings. It occupies the bulk of the volume—521 out of a total of 637 pages. Then follows a very incomplete list of universities, institutions, learned societies, &c., connected with medicine. Under the heading "Dublin (Ireland)" we read: "*Royal College of Surgeons in Ireland* (W. St. Steffen's Green). *Royal Academy of Medicine in Ireland.* 1882. 30 Members. 220 Fellows. Eintritt 21sh. Beitrag Members 21sh. Fellows 42sh. Präs.: Sir Th. Stocker; Gen. Sekr.: J. Craig, M.D., 18 Merrion Square." There is no mention of the University of Dublin, of the Royal University of Ireland, or of the Royal College of Physicians of Ireland.

Part III. contains a list of medical journals, year-books, &c. A short list of the medical publishing firms who had answered the Editor's request for information occupies only two pages. Then comes an alphabetical register of the names included in

the Directory. The only Irish names we came across were those of Professor Symington, of Belfast, and of Dr. McWeeney, of Dublin. The Vademecum will be of substantial use to British and Irish readers chiefly because of the information it contains about German, Russian and other foreign medical scientists. We wish it every success.

Applied Physiology: A Handbook for Students of Medicine. By ROBERT HUTCHISON, M.D., F.R.C.P.; Physician to the London Hospital, &c. London: Edward Arnold. 1908. Cr. 8vo. Pp. xii + 298.

WHEN we read the author's name on the title page of this book, we anticipated pleasure and profit from a perusal of its pages—nor have we been disappointed.

The third paragraph in the author's preface assigns the reason for its publication. It runs as follows:—

"In the present book—the first, so far as the writer knows, of its kind—an attempt has been made to apply physiology to medicine in the same way as anatomy has long been applied to surgery. Seeing that it is not intended to be a substitute for physiological text-books, but merely a companion to them, all descriptions of methods have been omitted, and only the facts of physiology dealt with, chief emphasis being laid upon those which have a direct bearing upon clinical work: incidentally these bearings are pointed out."

The subject-matter of the work is discussed in eight chapters, which deal with the applied physiology in succession of metabolism, body heat, the blood and hæmatopoietic organs, the heart, circulation, respiration, digestion and excretion. An index concludes the volume.

Dr. Hutchison's literary style is far above the average of medical or scientific writing. And as to the matter of the book, there is little to invite hostile criticism. We do not, however, agree with the view he takes as to the action of certain antipyretics in fever. He writes (page 70):—"Antipyrine and other antipyretics of the same class appear to raise heat loss by dilating the surface blood vessels, and so increasing the amount of radiation from the body"—so far so good, but he adds—"whilst at the same time they seem

to have some action on the heat regulating centres whereby they overcome the disorganisation of those centres which play a leading part in the production of fever." Our experience does not lead us to adopt the view that the coal-tar derivatives exert any beneficial action in the direction of overcoming a disorganisation of the heat-regulating centres. Their action is certainly katabolic rather than anabolic—and we believe that Dr. W. Hale White is nearer the truth when, in his admirable article on "Fever" in the first volume of Allbutt's and Rolleston's *System of Medicine* (page 857), he observes: "The drugs which are powerful antipyretics—*e.g.*, antipyrin, acetanilide, and phenacetin—are all of them poisonous drugs which depress the heart; it is probable that when they were in vogue many deaths were due to their use."

Dr. Hutchison's account of the blood is wonderfully clear and concise, and in his description of the heart and its work he has laid under contribution much of the most recent literature of the subject. In the section on the Respiration we come across these practical remarks:—

"The absence of a vasoconstrictor supply to the pulmonary arteries also implies that suprarenal extract (which acts only on the terminals of such nerves) can be of no use in checking hæmorrhage from the lungs" (pages 184 and 185).

Per contra, "unlike the pulmonary vessels, those of the pleura are supplied with vasoconstrictor nerves [a fact] which renders them susceptible to the action of adrenalin. Advantage has been taken of this fact by Barr in the treatment of pleural effusion" (page 185).

The diagram of a lobule of the lung (after Stöhr), facing page 183, is misleading. The pulmonary artery, which of course carries venous blood, is coloured red, while the pulmonary vein, with its oxygenated blood, is coloured blue. Has the artist been himself misled by the terms "artery" and "vein"?

The book abounds in neat and appropriate applications of physiological considerations to clinical practice. For example, the author points out that "cerebral compression [by a blood-clot] is marked by increased blood-pressure, and this increase of pressure must be regarded as essentially

conservative in its action, and designed to compensate for the cerebral anæmia which compression causes. *It is therefore not lightly to be interfered with—e.g., by venesection*" (page 176). And again: "One must distinguish between the *polyuria*, which results from alterations in the blood-supply of the kidney, and which consists mainly in an increased excretion of water, and a true *diuresis*, in which the specific organic constituents of the urine are also voided more freely. The latter can only be brought about by an increased activity of the epithelial cells" (page 274). Slight lapses of grammar may be detected in the position of the words "also" and "only" in the latter quotation, but the sense is sufficiently clear.

Ostensibly written for medical students, this book may be read and *studied* by qualified practitioners to their own profit and the benefit of their patients. It is well illustrated and beautifully printed.

The Practical Medicine Series. Vol. VI. General Medicine. Edited by FRANK BILLINGS, M.D.; and J. H. SALISBURY, M.D. Series 1908. Chicago: The Year-Book Publishers.

THIS is a handy and readable little volume forming one of a series of ten volumes on the year's progress in medicine and surgery, which are being brought out under the general editorial charge of Dr. Gustavus Head, of Chicago. It deals with the general advances that have been made of late in the study of most of the fevers, and in diseases of the alimentary canal and its associated glands. The information is presented in narrative form, and in that way the book compares most favourably with the old style of year-book, in which bald summaries of innumerable papers were given, without editorial comment, and with hardly any attempt to combine the facts stated into a readable form. More than two-thirds of the space, 350 pages in all, are devoted to diseases of the alimentary system, and constitute a most valuable reference book for the practitioner who wishes to employ the most modern and best-approved methods of diagnosis and treatment. It is impossible and unnecessary in reviewing a book of the kind to criticise the contents further than to say whether the

editors have succeeded in collecting the latest information or not. In the present case we are of the opinion that they have succeeded, and a glance at the section on pancreatic insufficiency, on gastric ulcer, and on the test for occult blood in the fæces will substantiate this statement. That the sections dealing with infective fevers are similarly up to date can be shown by pointing to the sections on the serum treatment of cerebro-spinal fever, to the ophthalmo test of Chantemesse for typhoid fever, and to the section on typhoid carriers. The only omission that we note is that no mention is made of the absence of the abdominal reflex in typhoid fever (now usually known as Rolleston's sign). As, however, the sign is in our opinion of little value, we do not regret this omission. A few plates and illustrations are included in the work, but do not form an important feature of it. A good index of subjects, and also one of authors' names, facilitates reference. We have pleasure in commending the book to the favourable notice of our readers.

A System of Diet and Dietetics. Edited by G. A. Sutherland, M.D., F.R.C.P. London: Henry Frowde; Hodder & Stoughton. 1908.

This bulky volume of nearly 900 pages is one of the Oxford Medical Publications, the merits of which have been brought so prominently before the profession during the last couple of years by the energy and enterprise of the publishers. It is the combined work of nineteen different individuals, all of whom have contributed articles on divisions of the subject on which they have special knowledge and experience. It is unnecessary to refer to all of the writers by name, but the inclusion within the list of such well-known men as Hale White, Rose Bradford, Manson, Luff, Sir Lauder Brunton, Harry Campbell, Colcott Fox, and G. A. Sutherland, shows the reader the high standard which he may expect. At first sight the book is a formidable one to tackle, but—as we are told, indeed, in the preface—it is both readable and easy to read: readable from its easy style, and easy to read owing to the clearness of the print. In proportion to its bulk it is unusually light, probably owing to the fact that from the

practical absence of illustrations a paper could be selected without having regard to its adaptability for such. The result, as far as the reader is concerned, is most happy.

As compared with other works on the same subject, one is most struck by the practical character of the present one. Out of twenty-eight chapters, twenty-three are devoted to diet and dietetics as viewed from the standpoint of the practising physician. The only omission we notice in the work is one which we think might easily be supplied in a future edition—we refer to the subject of dieting after abdominal operations, more especially those on the alimentary canal. A very short chapter would suffice to give all necessary information, and would, we feel sure, be appreciated by the country physician, who is often left in charge of a surgical case after an operation, and who frequently finds that his necessarily limited experience of such cases leaves him in doubt as to what he may or may not with safety prescribe in the form of food.

The first four chapters deal with the classification and analysis of foods in general, with the physiology of digestion and nutrition, with the constituents of a normal diet, and with the evolution of man's diet. The last-named chapter is from the pen of Harry Campbell, as one would expect, and amidst much interesting information contains what he regards as a final refutation of the vegetarian's position. In dealing with diet tables, and experimental work on dietary, the writer, Dr. Spriggs, makes an interesting observation which is full of sound common sense. Speaking of Chittenden's work, he says, "The loss of strength and loss of weight which these students suffered was attributed to overstudy, but the increase of endurance to the food." The criticism is, we think, just, and the inference obvious. Chapter V., on diet cures and special diets, is a useful one in these days, when every second patient that comes to one's study demands an explanation of Metchnikoff's views on Bulgarian milk, and proceeds to relate his personal experiences of the Salisbury diet. Chapter VI. is also valuable from similar reasons, if no others. It deals with patent and proprietary foods, and is a reliable guide to the harassed practitioner surrounded by the array of life-giving nutrients which the morning

post has brought him from altruistic proprietors. There is one remark in the chapter that we would like to underline. It runs as follows:—"Meat lozenges . . . are to be absolutely condemned. Such lozenges and tabloids are quite innutritious, and are practically concentrated salts and extractives." We agree with the present writer, but we have, nevertheless, a vivid recollection of Professor Tyndall's account of his solitary ascent of Monte Rosa with two meat lozenges in his pocket, and of his philosophic musings on the subject of scientific food. Chapter IX. deals with rectal and subcutaneous alimentation, and is followed by a series of chapters which give in detail the dietaries suitable for various diseases. It is in this last respect that we regard the book as being of so great practical value. Once a diagnosis is made, the book can be consulted in the certainty of finding a concise yet adequate account of the proper dietetic treatment of the disease in question. The information given is largely based on personal experience, and its application is aided by the inclusion within the book of numerous recipes for invalid cookery.

State Board Questions and Answers. By R. Max Coepp, M.D.; Professor of Clinical Medicine in the Philadelphia Polyclinic; Assistant Visiting Physician to the Philadelphia General Hospital. Philadelphia and London: W. B. Saunders Company. 1908.

This book is nothing more than a series of questions and answers on the subjects of the State Medical Examination. Its object is to enable "dunderheads" to scrape through an examination which, if we judge from the questions and answers given in this publication—it seems a misuse of words to call it a book—is no test of the suitability of the candidate for a medical qualification.

No examiner familiar with his subject ever jumps about from point to point with cut-and-dry questions; he passes from some simple inquiry gradually opening up the subject thoroughly to allow of the candidate's intimacy with it to be made manifest.

The system which caused a demand for this book is bad,

and the book itself is unworthy of criticism. Its object is contemptible. It may make some money for printers, publishers, and author, but it discredits Medicine.

The Theory of Ions: A Consideration of its Place in Biology and Therapeutics. By W. TIBBLES, M.D. London: Rebman. 1908. Pp. 131.

Electric Ions, and their Use in Medicine. By PROFESSOR STEPHANE LEDUC. Translated by R. W. MACKENNA, M.B. London: Rebman. 1908. Pp. 70.

THESE two little books afford illustration of a new and interesting phase in the modern evolution of therapeutics, and may be read with interest and profit. They are, however, of unequal value, inversely, indeed, as their size.

Professor Leduc speaks with the authority of an original investigator who has done pioneer work in a little-explored country.

In the first two chapters he gives a succinct account of osmotic pressure and of the doctrine of ions. A brief and inadequate sketch of the theory of electricity is followed by sections on the electrolysis of living tissues, and upon electrolytic treatment.

He makes some remarkable statements about the effect of cerebral electrolysis which appear to us to rest on a slender basis.

"After the passage of a current of 10 to 20 milliampères for half an hour, directed from the nape of the neck to the forehead—*i.e.*, with the positive electrode on the back of the neck, and the negative on the forehead—one feels a sensation of lightness, the head feels more free, ideation is easier, more rapid, and more clear" (p. 57). He has firm belief in the sclerolytic action of electrolysis, and the following remarks are worthy of the serious attention of surgeons:—

"One of the most constant actions of electrolytic treatment is the resolving influence on sclerous and cicatricial formations of a kathodal stream of a solution of chloride of sodium. Joints completely anchylosed rapidly recover their mobility without forced movements or pain. The anchylosis disappears

progressively from day to day, and the joints regain all their mobility."

Dr. Tibbles' book is merely a compilation, and although brightly written is not always so accurate as we have a right to expect in a book intended to instruct novices in the recent developments of the application of physical chemistry to biology and therapeutics.

The material is strung together upon data derived from well-known text-books, and Pauli's "Physical Chemistry in the Service of Medicine" is freely quoted. Much of the subject-matter in Dr. Tibbles' book is better put in Dr. Findlay's *brochure* on "Physical Chemistry and its Application in Medical and Biological Science" (1905).

Dr. Tibbles attempts to cover too much ground in the space at his disposal. His incursions into the domain of organic chemistry are unnecessary to anyone with a fairly elementary knowledge of the subject, and we greatly fear would be unintelligible to those who have not.

Methodus Medendi: A Sketch of the Development of Therapeutics. By Sir W. H. Allchin, M.D. London: H. K. Lewis. 1908.

In October, 1906, Sir W. Allchin gave an Inaugural Address at the opening of the 76th Session of the York Medical Society; and the *brochure* under notice is an expansion of this Address.

The subject of the development of therapeutics is one that has been frequently handled by various writers, and it is difficult to impart much novelty into its treatment.

Sir W. Allchin's contribution is a sound and scholarly survey of the genesis and growth of therapeutical methods.

He distributes his material under three chapters. Chapter I. discusses Treatment by Supernatural Methods; Chapter II., Treatment by Drugs—*i.e.*, the empirical method; and Chapter III., the Rational Treatment of Disease—*i.e.*, scientific therapeutics. In this latter chapter the author leads us up from the teaching of Hippocrates to the modern methods which now so largely influence practical therapeutics.

The conclusion of this learned and adequate exposition of the progress of the healing art is "the assurance, as the out-

come of constant revolutions in thought and action, that the lines along which progress is now being made are full of promise of further benefit to mankind in directions that are alike scientific and encouraging."

We can heartily commend this pamphlet to the notice of our readers, and many subjects of great interest are touched upon.

General Surgery. By EHRICH LEXNER, M.D. An authorised Translation by DEAN LEWIS, M.D. London: D. Appleton & Co. 1908. 8vo. Pp. xxix + 1041.

THIS book will be found very attractive and illuminating to those who are anxious to keep abreast with the times in general surgery. We have nothing but praise for the letter-press and for the illustrations generally, though, perhaps, some of the latter are time-worn and might be replaced. The book is certainly more up to date than any yet written on the subject. Local anæsthesia, Bier's treatment by passive hyperæmia, the pathology of tumours (especially endotheliomata), and diseases of bones and joints generally are adequately dealt with, and get all the attention such important subjects deserve. We have some hesitation, however, in adopting the view of the translators that it is wise to completely separate general from regional and special surgery, and we rather incline to the older method adopted in British and American text-books of allowing the one to follow closely on the other. Notwithstanding the clear explanation in the preface, it is with somewhat of a shock we search the index of so large a work in vain for words such as "appendix," "gall-bladder," "femur," or the names of other portions of our anatomy to which surgical attention is constantly drawn. We ask ourselves the question, after reading the preface, would not the general principles of surgery, with little addition, be learned adequately by a study of the special surgery of the regions? and so enable the overworked student to kill two birds with the one stone. Authors, like professors and examiners, forget the lot of the present-day student. He is hunted by specialists from the lecture theatre to the laboratory, from the laboratory to the examination hall, in a whirl of notes and

books, expected to have a good knowledge of a dozen subjects, of which the author, the professor and the examiner know but one. We welcome any effort to give additional time for medicine and surgery, but so long as the professors responsible for the first three years' professional course insist in extracting "the pound of flesh," there is no possibility of a student in his third year in this country mastering so large a book as that translated by Dr. Lewis and Professor Bevan as a mere preliminary to the practice of surgery.

Landmarks and Surface Markings of the Human Body. By Louis Bathe Rawling, M.B., B.C. (Cant.), F.R.C.S. (Eng.); Assistant-Surgeon, Demonstrator of Practical and Operative Surgery, late Senior Demonstrator of Anatomy at St. Bartholomew's Hospital; late Assistant-Surgeon to the German Hospital, Dalston; late Hunterian Professor, Royal College of Surgeons, England, &c. With Thirty-one Illustrations. Third Edition. London: H. K. Lewis. 1908. Demy 8vo. Pp. vii + 96.

We have pleasure in noting the appearance of another edition of a work which twice before has been favourably reviewed in our pages—in May, 1905, and in August, 1906.

The text in this third edition has been scrupulously adhered to, but the illustrations have been much improved. They appear in 29 plates, comprising 31 figures.

A Manual of Surgery for Students and Practitioners. By William Rose, M.B., B.S. Lond., F.R.C.S., Emeritus Professor of Surgery and Member of Council, King's College, London; and Albert Carless, M.S. Lond., F.R.C.S., Professor of Surgery in King's College, and Surgeon to King's College Hospital, London. Seventh Edition. London: Baillière, Tindall & Cox. 1908. Demy 8vo. Pp. xvi + 1376.

We hail with satisfaction the appearance of the seventh edition of this excellent handbook. In June, 1906, we welcomed in our pages the sixth edition, which was originally published in August, 1905, and has since been reprinted in

November, 1906, and again in April, 1907. These facts are sufficient to prove the high esteem in which the work is held by both teachers and students.

Professor Rose, having happily and completely recovered from a serious illness, has been able to take a full share in the preparation of the seventh edition. Dr. W. d'Este Emery, Clinical Pathologist at King's College Hospital, has written the new material required in connection with bacterial vaccines and opsonins. The latter word is stated (page 24) to be derived "from *opsono*, I cook, or prepare for food," but the strict meaning of this Latin verb is "I cater for." The Greek verb ὀψώνεω is the accepted origin of the words *opsonin*, *opsonic*. Why does Dr. Emery use the horrid term "sera" instead of "serums"?

A number of new X-ray pictures of fractures have been provided by Mr. A. D. Reid, the medical officer in charge of the Electrical Department of King's College, Hospital. Dr. Dupuy is the artist who has been responsible for most of the new illustrations in this edition.

The publishers have done their part admirably—type, paper, and binding being all that could be desired.

Treatment of Internal Diseases. By Dr. Norbert Ortner. Edited by Nathaniel Bowditch Potter, M.D. Translated by Frederic H. Bartlett, M.D. Philadelphia and London: J. B. Lippincott Company. 1908. 8vo. Pp. xiii + 658.

A translation into English of Ortner's well-known work will be welcomed by many medical practitioners. The present issue should satisfy their requirements. The translation is quite as good as most of its kind, it is by Dr. Bartlett, and the book is issued in good style. To the translated text of the original the Editor adds much advice, some his own, some acknowledged as that of others.

The subject-matter of the book is the treatment of disease, not only by drugs, but by extra-medicinal methods—dietetic, hydrotherapeutic, climatic, &c. On the extra-medicinal treatment considerable emphasis is laid, but a great deal of room is devoted to lists of drugs, many of which are of very

questionable efficacy. Various combinations of these drugs into prescriptions, and printed in full, are a further sad misuse of space. The Editor openly appreciates this shortcoming. It is a pity he was unable to exclude them from the translation. Their omission would appreciably reduce the size of the volume, already considerable, for it is a rather spun-out treatise, and inclined to over-detail. These defects, however, only partially obscure a real worth in the book, which contains much good, reasonable instruction, and has been brought by the Editor up to date. It contains much that one does not find out easily elsewhere; and it is with interest that one reads the immense variety in luxurious treatment—climatic and otherwise—that is within the reach of those who can afford to enjoy bad health.

Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. Seventh Edition. London: J. & A. Churchill. 1908. 8vo. Pp. xii + 940.

That a medico-pathological treatise has justified the publication of seven editions in about twice as many years speaks sufficiently for the interest it has evoked. Dr. Haig's theories are so well known to the whole medical profession (and for that matter to so large a section of the general public) that any enunciation of them here seems superfluous.

The present issue contains numerous additions to both the clinical and experimental portions of previous ones, and new arguments are introduced in support of their author's views as to how very widespread the deleterious action of uric acid may be. In brief, uric acid is put forward as a prominent, if not a unique, causative factor in the production of headache, epilepsy, asthma, Bright's disease, diabetes, neuralgia, bronchitis, mental depression, gout, rheumatism, and several other disorders, the exact nature and limitations of which it is difficult to define. The cure of these is found in the removal of uric acid. The way to remove it is, speaking generally, to become a vegetarian and give up tea and coffee.

The book contains some 900 pages of matter, and is well got up and indexed. Some of the cases cited are really very

remarkable, and the experimental work must have involved a great perseverance in patient industry.

A noteworthy commentary on Dr. Haig's doctrine is furnished by a separate leaflet, which is inserted in this publication. This advises one of a sanatorium where practical instruction in uric acid free dieting may be had under medical supervision.

The Harvey Lectures. Delivered under the auspices of The Harvey Society of New York. 1906–7. Philadelphia and London: J. B. Lippincott Co. 1908.

The Harvey Society of New York present the series of lectures delivered under their auspices during the second year of their existence, in the form of a handy volume of a little more than 300 pages, clearly printed on good paper, and well bound. The Society was started on the assumption that there was a desire on the part of medical practitioners to acquire at first hand from men engaged in research more knowledge of the scientific principles and problems underlying their profession, and in consequence they have taken pains to secure as their lecturers men recognised for their scientific attainments and investigations. The present list of ten lecturers includes such well-known writers as Almroth Wright, Herter, Adami, Councilman, and Meltzer. The lectures are of the advanced post-graduate type, and each one of them deserves careful reading, not only for the information it contains, but also for the vistas it opens up of the paths along which investigation is required and must proceed. The first lecture in the present volume is by Sir Almroth Wright, on the principles of vaccine therapy. It contains an illuminating but brief account of the principles underlying the various methods at our disposal for the treatment of bacterial disease and a detailed exposition of the method introduced by Wright himself—namely, by the use of vaccines controlled by observation of the opsonic index. An interesting portion of this paper is the section that deals with the evidential methods which an author can employ to establish the efficacy of a new treatment. Herter's paper on "Bacteriological Infections of the Digestive Tract and the

Intoxications arising therefrom." is a careful study of the influences which respectively promote and retard abnormal fermentations, and the growth of abnormal bacteria within the intestinal canal. As a necessary corollary to this study, the therapeutic means which may be employed to restore a healthy condition are briefly dealt with. A careful account of metabolism during inanition is presented by Benedict, who has made personal observations on fasting medical students and on a professional masseur, the latter observation extending over a period of seven days. The paper is very full of data of importance, but we can quote only one of his observations—namely, that about ten grammes of nitrogen are metabolised daily during the fasting condition. Papers on heredity, on nervous affection of the heart, on myelin bodies, vasomotor relations, the factors of safety in animal structure and animal economy, on changes in the lymphoid tissue in infectious diseases, and on anomalies of the genito-urinary tract complete the series. The last-mentioned paper is well illustrated by numerous plates and diagrams.

Physical Signs of Diseases of the Thorax and Abdomen. By James E. H. Sawyer, M.A., M.D. Oxon., M.R.C.P. Lond. London: Baillière, Tindall & Cox. 1908. Cr. 8vo. Pp. xi + 188.

Dr. Sawyer's little work is written for medical students, and should prove a valuable acquisition to any of them.

The book gives a succinct account of the various methods of physical examination. Normal conditions are described first, and then abnormal ones; and considerable space is devoted to the question of differential diagnosis. The book is written in a style easy to read, not so condensed as to be heavy, nor rendered discursive by the introduction of controversial matter. The illustrations, diagrammatic and otherwise, are good. In fine, the work is to be recommended.

PART III.

MEDICAL MISCELLANY.

Reports. Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny, M.D., F.R.C.P.I.
General Secretary—James Craig, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—W. G. Smith, M.D.
Sectional Secretary—F. C. Purser, M.D.

Friday, November 6, 1908.

The President in the Chair.

The President gave an Address on baths and mineral waters and some fallacies connected therewith. [This Paper will be found at page 1.]

Dr. James Little said—In selecting a mineral water for a patient the doctor had to consider the characteristics of the patient, the climate of the place to which he was going, the bathing and drinking facilities, and the social amenities of the place, and the doctor under whose care the patient was going. He did not think that mineral waters did as much good now-a-days as fifty years ago, because the patients of former times had realised incomes, and could go away without any mental disturbance, but patients now worked up till two in the morning arranging their business, and then rushed off and drank more than they were ordered, and so got little benefit. A patient with organic disease, who was sent to mineral waters, had usually incalculable injury done to him, but, if the disturbance was only functional, real benefit would be derived. He thought the reputation of many watering places depended on the ability of the local medical men.

Mycosis Fungoides.

Dr. Dempsey exhibited a case of mycosis fungoides in a man aged sixty-two, by occupation a small farmer. Up till five or six years ago he had enjoyed perfect health. There was nothing peculiar in his family history. At first a rash appeared on his back, and remained for a year. It then invaded his chest and spread to his legs. It became indurated in places, and was also scaly. A year and a half ago a small lump appeared on his shoulder, and increased very much in superficial extent, but not in height. Other lumps followed. Some disappeared spontaneously after a few months. The general health did not suffer despite the extent of and the irritation caused by the disease, but the patient thought himself less able for hard work. The case was being treated with X-rays, and had so far had four exposures.

The President said the disease was extremely rare in Ireland. He had seen no case for ten years. The name "mycosis fungoides" had been introduced into the nomenclature by Alibert a hundred years ago, and modern pathologists had not yet been able to give the affection a definite place.

SECTION OF OBSTETRICS.

President—E. H. Tweedy, F.R.C.P.I.

Sectional Secretary—Henry Jellett, M.D., F.R.C.P.I.

Friday, November 13, 1908.

The President in the Chair.

Twelve Cases of Malignant Disease of the Uterus (eight operated on by Wertheim's method).

The President exhibited specimens from twelve cases of malignant disease of the uterus, eight of which had been operated on by Wertheim's method since the last meeting of the section. The cases were not all that he had done, but they made a sad and suggestive exhibit. He had done as large a total extirpation as possible, but some of the cases were obviously not cases in which Wertheim's operation could be performed. He held that they should operate on every possible case that gave the least hope of immediate recovery, even if the immunity were only for six months.

Dr. Purefoy agreed that operation should be attempted where there was reasonable hope of survival. Where recurrence took place it was attended with less distress, and with almost absence of discharge.

The President, in reply, said he had a good many more cases tabulated, but he thought it better to defer a paper for some time in order that he might be able to follow them up and see how much good had been done. He now merely recorded the present cases to show that a serious attempt was being made in the country to grapple with the awful disease of cancer of the uterus.

A Fibroid Uterus removed along with Hernial Sac for the Relief of Recurrent Peritonitis.

Dr. R. D. Purefoy exhibited a fibroid uterus removed along with hernial sac for the relief of recurrent peritonitis. The patient, an unmarried woman, about forty years of age, was in anything but good health at the time of the operation. She had previously undergone ovariotomy, and the cicatrix had yielded, and the case had become complicated with a ventral hernia. She sought relief because she suffered from menorrhagia, with recurrent peritonitis. The uterus had a layer of lymph on its anterior surface. The point of interest in the case was what had given rise to the peritonitis. Was it the presence of the hernia and the dragging on it caused by adhesions between it and the uterus?

The President said that ovariotomy a few years ago was usually attended with peritonitis. He believed the suffering was caused by the wound not uniting.

The late Sir A. V. Macan.

At the conclusion of the exhibits,

Sir William Smyly said that on the last occasion on which they had met the chair was occupied by Sir Arthur Macan. Years before the Academy was thought of, Sir Arthur Macan was one of the most active members of the old Obstetrical Society, and since the formation of the Academy there were years when the very existence of that Section rested almost entirely on his exertions. He could remember very well the first evening on which he (the speaker) went to the old Obstetrical Society, when a member proposed "that no new-fangled, German or moonshiny ideas be permitted to be discussed at the society." Sir Arthur Macan

was at that time the only representative of such ideas, and the reply he made was: "I have small hope of converting any of you to these ideas, but when you are all dead they will be accepted as truisms." Sir William stood there to-night, with, perhaps, Dr. Atthill and Dr. Purefoy as the only ones alive who could have been at that meeting, and he now saw before him a meeting of men who accepted those "new-fangled" ideas as mere truisms. He thought that they should not let the evening pass by without placing on record not only their regret at the loss which the Section had sustained in the death of Sir Arthur Macan, but also their sense of esteem for his memory, and gratitude for the part he took in sustaining the reputation of obstetrics in Dublin. He therefore proposed:—

"That the Obstetrical Section of the Royal Academy of Medicine in Ireland at their first meeting for the present session desire to place on record their regret at the great loss which this Academy, and especially this Section, have sustained by the death of Sir Arthur Macan."

Dr. Purefoy endorsed to the fullest extent everything that had fallen from Sir William Smyly. Sir Arthur Macan had won for himself a foremost position amongst the authorities and exponents of obstetrics and gynæcology in the United Kingdom by assiduous hard work and thoroughness, and the profession had sustained a severe loss in his death.

The President desired to add his personal sorrow at the loss of Sir Arthur Macan to the Rotunda Hospital. He had had the privilege of first learning midwifery from Sir Arthur when he was Master of the Rotunda, and he could tell them of the improvements wrought in the hospital during his time. Sir Arthur had no data to work on, and the antiseptic methods of the Rotunda were worked out in detail by him. He introduced asepsis; and they still had in the hospital his charts containing rules for abdominal palpation. He curtailed examinations to four; and he adopted methods of washing hands and disinfecting in a way undreamt of in the United Kingdom before. He made mistakes at first, but he eventually evolved a comparatively perfect system. No one would know how much he had influenced medical and surgical thought. The whole world had gained by the life of Sir Arthur Macan, and he hoped they would all keep abreast of the times to the last as Sir Arthur had done.

This resolution was passed in silence, all present standing.

A Case of Ectopia Vesicæ complicating Pregnancy.

Dr. Holmes read a paper on this subject. The patient, aged thirty-three years, was admitted to the Rotunda Hospital, six and a half months pregnant, suffering from ectopia vesicæ. The separation of the pelvic bones was very marked, as much as six inches. The external genitalia were represented by poorly formed labia majora, which diverged upwards, the nymphæ and clitoris by a small band of skin which traversed the introitus vaginæ, the latter being a narrow transverse slit situated very far forward, thus making the perineum very long. At the seventh month labour set in spontaneously. The head was driven down into the long perinæum, which was divided, and the head was easily delivered. During the puerperium prolapse occurred, as there was no anterior support. The patient left hospital well. The infant was stillborn. Apparently there are not many cases of this anomaly—about fourteen have been recorded. Monroe-Ker mentions one, Adams another, Klein seven cases, and Champneys refers to the condition.

Dr. Spencer Sheill asked how Dr. Holmes had arrived at the conclusion that the separation of the bones was six inches by the X-rays. It would infer that the X-rays were accurate for measurement of the pelvis, but experience showed that that was not the case. Perhaps he simply judged it to be six inches approximately from the shadowgraph.

The President said he had an opportunity of seeing the case before leaving the hospital. It was a typical example of split pelvis. The pelvis could now be measured very accurately by means of the X-rays with the aid of a special device which had been invented for the purpose. There was no fore-shortening in the photograph, and there was no reason why the gap between the bone could not be measured very accurately.

Dr. Holmes, in reply, said the measurements were made as felt with the measure, and they practically coincided with those obtained by the photograph. There had been only about fourteen cases recorded.

Myoma and Pregnancy.

Sir William Smyly read a paper on myoma and pregnancy. Having briefly referred to the subject in general he detailed a case in which serious complications during childbirth and the puerperium were caused by a myoma as large as an adult fist,

growing from the lower segment of the uterus and developed between the layers of the left broad ligament. These complications included tedious labour, malpresentation, version and extraction of a dead fœtus, *post-partum* hæmorrhage, retention of the lochia, followed by putrefaction and septic fever. The removal of the tumour by an abdominal operation was succeeded by a pregnancy which ended in the birth of a living child after a normal labour.

Dr. FitzGibbon cited a case in which a fibroid occupied the entire fundus. It flattened out over the fœtus, until in the later months it was difficult to differentiate the tumour from the uterine contents. The case was watched, and allowed to go to full term, and the woman was delivered of a living child without difficulty.

Dr. Purefoy said the difficulty of diagnosticating pregnancy in the first few months in fibroid uterus was a matter of great importance, and should be constantly present to their minds when dealing with such cases. Sir William Smyly's paper illustrated the fact that a woman having a fibroid uterus often passed through several years of married life before pregnancy occurred. In some cases the tumour remained stationary in pregnancy. In some it diminished, as in a case where several small fibroids were palpated at the first pregnancy, while in a second and third pregnancy their presence was difficult to recognise. On the other hand, in some cases the tumour grew very rapidly. His own observations bore out Sir William Smyly's statement that in some cases they removed a fibroid uterus without suspecting it to be gravid. The presence of one or more fibroids would give them trouble chiefly in the third stage. Some observers in England advised patients to avoid matrimony, as pregnancy was fraught with great risk under the circumstances, but that was not their experience in this country.

Dr. Holmes recalled a case in which the patient, after delivery, developed puerperal ulcer, and died. The uterus was studded all over with myoma, and practically every fibroid was either a little abscess sac or had burst.

Dr. Rowlette said there was a peculiar form of degeneration in fibroids which occurred frequently, but did not appear to occur apart from pregnancy. In some cases the whole fibroid underwent a marked red pigmentation. In other cases there was much less pink coloration.

Dr. Henry Jellett said he had watched a case during the

whole of pregnancy a year ago. The patient came about the second month. The uterus was large, soft and flabby on top, and below was hard and irregular. He came to the conclusion that there were myomata, and that she was probably pregnant. The myomata were situated apparently as close to the cervix as they could get. Pregnancy went on without trouble, and the myomata preserved their position. After the ninth lunar month the myomata were still close to the cervix, but with a little space between. He still thought they would probably offer an obstruction to delivery. A fortnight afterwards, however, there were no myomata to be felt, as they had gone up above the symphysis, drawn up during the formation of the lower uterine segment. She had a normal confinement. In another case he operated two years after pregnancy, and found two ordinary intra-mural myomata which had apparently completely died. There was no circulation in them, and they had a complete capsular wall of calcareous concretions.

Dr. Ashe asked what was the position of the placenta in relation to the tumour.

The President said so far as he knew this case was the first reported in Dublin of myomectomy with subsequent pregnancy. Myomectomy at full term without the removal of the uterus seemed to him an impossible operation in the majority of cases. The hæmorrhage that followed the enucleation of a myoma in a pregnant uterus would be greater than he would like to face. In young married women they would all operate if they were sure they could remove the tumours by myomectomy, but that was what they were not sure of. He therefore always let a young married woman keep the myoma in the hope that she would become pregnant. He thought their resources were quite adequate to deal with the myomatous condition no matter where situate. It was not always easy to diagnosticate pregnancy when it occurred in a myomatous uterus.

Sir William Smyly, in reply, said the tumour was attached to the lower uterine segment, and was about the size of a billiard ball. When he opened the broad ligament from the front he had no difficulty in enucleating it. There was considerable hæmorrhage, but he was fortunate in that the first suture included the uterine artery, and he had little trouble afterwards. He did not ligate the ovarian artery separately. He sutured up the rest of the cavity with silk sutures.

Card Specimens.

THE PRESIDENT showed the following card specimens:—(*a*) epithelioma of uterus, 9; (*b*) adeno-carcinoma of uterus, 3; (*c*) sarcoma of uterus; (*d*) fibroid of uterus, 14; (*e*) adeno-myoma of uterus; (*f*) carcinoma of ovaries; (*g*) cyst of ovary, 6; (*h*) dermoid, 2; (*i*) pyosalpinx; (*j*) tubercular tubes; (*k*) tubal pregnancy; (*l*) hypernephroma.

SECTION OF PATHOLOGY.

President—A. R. PARSONS, M.D.

Sectional Secretary—Professor WHITE, R.C.S.I.

Friday, November 20, 1908.

THE PRESIDENT in the Chair.

Double Mitral Lesion: Embolism of Spleen.

SIR JOHN MOORE exhibited a specimen of double mitral lesion.—E. B., a gamekeeper's daughter, aged fourteen years, was admitted to the Meath Hospital on August 11, 1908. She died on September 14. She had been seriously ill for five weeks before her admission, complaining of pain about her heart and of short breath. Her weight was six stone and half a pound. Physical examination showed that she was suffering from the effects of rheumatic endocarditis, unmistakable evidence that compensation had failed being present. As to the heart itself, a double murmur was audible at and near the seat of impulse, a presystolic murmur with slight valvular thrill indicating mitral obstruction, while a systolic murmur heard over an extensive area from the apex beat to the left side and back indicated mitral leakage. The latter murmur was conducted upwards towards the aortic area, where it was faintly heard, but it quite failed to reach the carotids by convection. There was, therefore, no clinical evidence of any lesion of the aortic valves. The girl made satisfactory progress through rest in bed and on three-grain doses of citrate of iron and quinine, and compensation seemed to be almost restored, when on Friday, September 11, she suddenly became unconscious, and vomited freely. She soon recovered consciousness in part, that is in two hours from the seizure, but vomiting recurred at intervals during the day. When she became able to express herself, she complained of great pain

in her left side, but no pleural rub could be felt or heard over the left base. The left eye became acutely inflamed, and presented the features of an embolic and septic panophthalmitis. On the evening of the attack the axillary temperature rose to 101.2°, the pulse to 126, and the respirations to 54 per minute. Next day the thermometer did not rise above 97.4°; but in the death-agony on the morning of September 14—about seventy hours from the seizure—102.6° was recorded, the pulse being 148 and the respirations 52. She died at 5 p.m. of the 14th. An autopsy was made by Dr. Wm. Boxwell, the Assistant Pathologist to the hospital. He reports as follows:—"On opening the pericardium a small amount of serofibrinous fluid was found within it. The heart itself was about normal in size, and weighed eleven ounces. The visceral pericardium shows some subacute pericarditis, especially over the left auricle. On opening the chambers of the heart, and washing out the clots, the first thing noticed was an extensive acute vegetative endocarditis spreading over the wall of the auricle, and continuous with a similar condition of the parietal cusp of the mitral valve. The wall of the auricle is considerably thickened over a circular area the size of a shilling, and covered with vegetations. The auricular ventricular orifice is obstructed by shaggy vegetations growing from both cusps, especially the septal cusp. This cusp is also somewhat rigid and distorted. The orifice itself is, however, not stenosed, and admits two fingers freely. There is considerable thickness of the chordæ tendineæ, pointing to a previous chronic inflammation. The changes found in the spleen are also of some interest. It is enlarged and full of infarcts, some old-standing, others more recent. One of them—a large reddish one—was suppurating, and an abscess, containing about an ounce of thick pus, was formed between the spleen, the overhanging and adherent liver, and a peritoneal fold. There was no generalised peritonitis. Some small infarcts in the kidneys, one of them recent and hæmorrhagic, were also noticed. There was nothing of interest in the lungs or other organs examined." The case illustrates the distinction which may be drawn between mitral narrowing, or stenosis, properly so-called, and mitral obstruction due to vegetations in and about what is really a dilated mitral orifice. It also affords a striking example of infarction and of septic embolism of the spleen.

Sir Christopher Nixon said he differed from Sir John Moore

in the distinction he had made, because he ought to take into consideration not merely the auriculo-ventricular ring, but also the condition of the two flaps of the mitral valve in relation to the ring in judging whether stenosis or obstruction existed. The specimen seemed to illustrate the funnel-shaped mitral valve. The two segments of the valve were extremely thickened and rigid, and it was quite intelligible that in the mechanism of the movement of the valve the flaps could not be separated from each other. They therefore constituted a distinct process of stenotic disease, inasmuch as they narrowed the orifice through which the blood-stream passed. The only condition in which he could conceive distinct obstruction without any narrowing of the orifice of the mitral valve was that mentioned by Austin Flint in cases of aortic regurgitation, where the anterior current of the mitral valve, during the aortic reflux, pressed against the posterior current, and so opposed the passage of the blood through the auricle to the ventricle. He thought it was a matter of experience that the murmur was extremely rare. He had frequently found a distinct apparently mitral presystolic murmur which was really the murmur of aortic regurgitation, and that was the murmur which he conceived Austin Flint mistook for a direct mitral murmur. He could not fancy that a perfectly unaltered structure being simply pressed over against the mitral orifice would give rise to a direct murmur of mitral obstruction.

The Secretary pointed out that there was also a localised pericarditis in the auricular part, as the inflammation involved the whole thickness of the auricular wall.

Sir John Moore, in reply, said it was not possible, until the seizure, to palpate the spleen under the left ribs. The area of splenic dulness seemed, to a certain extent, enlarged. Failing to find any pleural rub, it seemed evident that the pleura was not the seat of the pain. The temperature was steady until the last three days. He granted a certain amount of rigidity about the valves, but the vegetations that projected from the opening suggested much more mechanical obstruction by themselves than one due simply to narrowing.

Unusual Thyroid Tumour.

Mr. L. G. Gunn exhibited an unusual thyroid tumour, which presented a perfectly smooth surface outside. On cutting into

it it had the appearance of tuberculous affection, but the main thing that struck one was that quite large areas of calcification had taken place in the gland itself. About two months had elapsed, and the patient showed no signs of myxœdema occurring. In some cases the entire thyroid had been removed without its occurrence. The sections under the microscope gave the impression that a carcinomatous change had taken place in the gland.

Sir Christopher Nixon thought it was recognised not to be a justifiable procedure to remove the thyroid as a whole from the inevitable recurrence of myxœdema, as pointed out by the experiments of Horsley on monkeys. In Mr. Gunn's case there might be an accessory gland, which would prevent the myxœdema occurring.

Professor Scott said one section appeared to be normal, but the other had a patch which might be anything. The gland was certainly not normal.

The Secretary said the second section looked somewhat suspicious, but he would not like to say definitely that it was malignant.

Mr. Gunn, in reply, said he did not think it necessarily followed that the entire removal of the gland would be followed by disastrous results. He did not think—in reply to a question by Dr. Earl—that the areas of calcification were true bone. Professor White was inclined to agree with his view that the tumour looked ugly, and that the patient was better without it.

Sarcoma of Intestine.

Dr. Rowlette exhibited a specimen of sarcoma of the intestine. It was, he said, rather a rare disease. The specimen was removed *post-mortem* from a little girl of four years of age. Eight or nine months ago she had been admitted to hospital with a good deal of ascites. She was then thought to be suffering from tubercular peritonitis. About a month ago she returned to hospital with ascites, and a tumour could be felt in the ileo-cæcal region. She died, and a *post-mortem* was performed. A large mass was removed, having a very diffuse growth, which showed the usual translucent homogeneous appearance. Elsewhere in the peritoneum a small mass was discovered in the left pelvic region. There was also a mass of small size growing from the fundus of the uterus, and several tumours were in the liver and gall-

bladder. The lungs did not present any secondary masses. A microscopic section showed it to be a typical round-cell sarcoma. The case illustrated the clinical difficulty of diagnosticating between malignant disease affecting the peritoneum and tubercular peritonitis.

Mr. Gunn exhibited a specimen of a similar case involving the bladder. The patient was a woman of fifty-eight, and there were no means of knowing how long the tumour had been present, as it was quite painless and without any symptoms, and had been discovered only by accident. On operating for its removal it was found to be invading the abdominal wall from the large intestine. It also involved the upper part of the bladder to a certain extent. The bladder appeared to be a good deal inflamed, and it was remarkable that there was no albuminuria or bladder symptoms. The intestine was, to some extent, narrowed and distorted, yet there were no bowel symptoms. The operation was very severe, and the patient only lived two or three days after it.

Abscess in Brain.

Dr. Boxwell exhibited a specimen showing an abscess in the left temporo-sphenoidal lobe. The patient from whom the specimen was taken was a man admitted to the Meath Hospital under Mr. Taylor's care on Thursday, November 5, 1908. The history of the patient, obtained subsequently, was that he had suffered from a double suppurative otitis media from the age of seven, and had continued to suffer for eight or nine years. The discharge then ceased, first on one side and then on the other, and he remained free from any sign of ear trouble until seven or eight months ago, when, without any cause so far as he knew, both ears began to discharge again. He came to the Meath Hospital from Cork Street Fever Hospital, where he had been undergoing treatment for typhoid fever. During convalescence he complained of headache for two or three days, and then vomited almost incessantly for a day and a half. The character of the vomiting was cerebral. The discharge still continued. The optic discs were examined, but no evidence of "choked disc" could be detected. On the Sunday or Monday previous to his admission to the Meath, Dr. Davies, assistant to Dr. Day, noticed some defect of memory, which was, however, only transitory. The patient had forgotten where he lived and what brought him

to the hospital. The eyes were again examined, but nothing abnormal could be seen. The pulse varied from 76 to 86 to the minute. The tension was normal, and the temperature was 98°. When first seen at the Meath Hospital the above history was not available, but the discharge from *both* ears was evident. The patient's intellect seemed quite clear. He answered correctly, but with the faintest possible suspicion of hesitation or slowness. There was no complaint whatever of headache, even on inquiry. He denied having vomited, and said any headache he had previously suffered from was trifling. The pupils on both sides were quite normal, and reacted readily to light. The reflexes in both arms and legs seemed normal. There was no impairment of movement of the eyeballs. No tenderness or firm pressure anywhere over the head, and no pain or tenderness complained of on percussion over either side of the head. Temperature, 97.8° ; pulse, 80 ; tension normal. Hearing that both optic discs were that morning found normal, no further ophthalmoscopic examination was made. The condition remained unchanged for the next two days. It was on Saturday night at 9 30 p.m. that the clear history of loss of memory and vomiting was first obtained from Cork Street, and so it was determined that, if the patient's condition was no better next morning, an operation should be performed. On Sunday at 2 a.m. he became comatose, and in this condition he was found by Mr. Taylor at 10 a.m. Pulse, 76 ; respirations quiet. Touching his head anywhere caused him to move the right leg and right arm. There was no attempt at all to move either of the left limbs. The head was also turned to the left side on touching the left side of his head. He was trephined at once over the left temporo-sphenoidal lobe. This site was selected on account of the history of loss of memory noticed earlier in the case, and on account of the slight difficulty it was thought he exhibited on pronouncing his words on the evening he was admitted. A large abscess was readily found and drainage provided. The pulse at once ran up to 140. The temperature one and a half hours after was 101°, but he remained comatose with widely dilated pupils. At 6 p.m. his temperature was 105°, pulse 130–40. Next morning his condition was just the same, and he died comatose twenty-four hours after operation. Autopsy—temporo-sphenoidal abscess.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore.

Vital Statistics

For four weeks ending Saturday, November 28, 1908.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended November 28, 1908, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 19.8 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,131,959. The deaths registered in each of the four weeks ended Saturday, October 31, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Nov. 7	Nov. 14	Nov. 21	Nov. 28			Nov. 7	Nov. 14	Nov. 21	Nov. 28	
22 Town Districts	20.6	18.1	20.1	19.8	19.7	Lisburn	13.6	9.1	4.5	9.1	9.1
Armagh	20.6	6.9	13.7	27.5	17.2	Londonderry	12.2	25.5	21.9	28.0	21.9
Ballymena	43.1	9.6	23.9	19.2	23.9	Lurgan	26.6	13.3	22.1	8.9	17.7
Belfast	18.1	16.7	17.8	18.0	17.7	Newry	12.6	25.2	12.6	12.6	15.8
Clonmel	5.1	30.8	10.3	10.3	14.1	Newtownards	17.2	74.4	5.7	17.2	28.6
Cork	18.5	16.4	20.5	26.7	20.5	Portadown	20.7	10.3	20.7	41.3	23.2
Drogheda	28.6	16.3	8.2	20.4	18.4	Queenstown	19.8	6.6	–	19.8	11.6
Dublin (Reg. Area)	23.8	19.3	24.2	22.2	22.4	Sligo	9.6	9.6	14.4	9.6	10.8
Dundalk	31.9	16.0	23.9	4.0	19.0	Tralee	37.0	10.6	26.4	10.6	21.1
Galway	11.7	15.5	3.9	15.5	11.7	Waterford	27.3	17.5	11.7	7.8	16.1
Kilkenny	24.6	34.3	24.6	24.6	27.0	Wexford	32.7	9.3	42.0	23.3	26.8
Limerick	13.7	15.0	21.9	13.7	16.1						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, November 28, 1908, were equal to an annual rate of 1.2 per 1,000, the rates varying from 0.0 in twelve of the districts to 5.7 in Newtownards—the 3 deaths from all causes registered in that district including one from enteric fever. The 131 deaths from all causes registered in Belfast included 2 from measles, one from scarlet fever, and one from enteric fever. Included in the 39 deaths from all causes registered in Cork are one from measles and one from enteric fever. Three deaths from diarrhœal diseases are included in the 23 deaths from all causes registered in Londonderry. Of the 4 deaths registered in Galway, one was from typhus. One of the 3 deaths registered in Newry was from whooping-cough. One of the 2 deaths registered in Lisburn was from diphtheria. Of the 2 deaths registered in Sligo one was from measles, and one of the 2 deaths registered in Clonmel was from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 394,525, that of the City being 303,874, Rathmines 36,087, Pembroke 28,183, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, November 28, 1908, amounted to 173—89 boys and 84 girls; and the deaths to 178—89 males and 89 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 23.5 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the area, the rate was 22.2 per 1,000. During the forty-eight weeks ended with Saturday, November 28, the death-rate averaged 22.6, and was 2.3 below the mean rate for the corresponding portions of the ten years, 1898–1907.

The deaths—178—included 6 from measles, one from scarlet fever, 2 from whooping-cough, 2 from diphtheria, and one from dysentery. There were also registered one death from enteritis

and 3 deaths from *gastro-enteritis* of children under the age of 5 years. In each of the 3 preceding weekly periods deaths from measles were 3, one, and 8; deaths from scarlet fever were 0, 0, and 0; deaths from whooping-cough were 2, one, and 4; deaths from diphtheria were one, 0, and one; and deaths from diarrhœal diseases were 6, 4, and 4.

There were 2 deaths from lobar pneumonia, 13 from broncho-pneumonia, and 8 from *pneumonia* (not defined).

Deaths from all forms of tuberculous disease, which in the 3 preceding weeks were 35, 32, and 30 respectively, rose to 39 in the week under notice. The last figure includes 26 deaths from tuberculous phthisis (*phthisis*), 2 deaths from tuberculous meningitis, and 11 deaths from other forms of the disease.

One death was attributed to carcinoma, and 5 were referred to cancer, malignant disease (undefined).

The deaths of 3 infants prematurely born were registered.

Of 12 deaths from diseases of the brain and nervous system, one was of an infant under one month old from *convulsions*.

There were 16 deaths from diseases of the heart and blood-vessels, and 34 deaths from bronchitis.

Of 6 deaths assigned to violence, 4 were due to accident or negligence, one to homicide and one to suicide.

In 2 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These deaths were of infants under one year of age.

Seventy-five of the persons whose deaths were registered during the week were under 5 years of age (42 being infants under one year, of whom 9 were under one month old), and 37 were aged 60 years and upwards, including 18 persons aged 70 and upwards, of whom 9 were octogenarians, and 2 (females) were stated to have been aged 91 and 93 years respectively.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer

of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended November 28, 1908, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Nov. 7	-	*	*	5	-	-	7	-	2	12	14	-	*	*	-	40
	Nov. 14	-	*	*	12	-	-	6	-	6	15	8	-	*	*	-	47
	Nov. 21		*	*	14	1	-	5	-	1	16	19	-	*	*	-	56
	Nov. 28	-	*	*	12	-	-	15	-	3	10	9	-	*	*	-	49
Rathmines and Rathgar Urban District	Nov. 7	-	*	*	-	-	-	-	-	-	-	*	-	*	*	*	-
	Nov. 14	-	*	*	2	-	-	-	-	-	1	-	-	*	*	*	3
	Nov. 21	-	*	*	1	-	-	2	-	-	1	-	-	*	*	*	4
	Nov. 28	-	*	*	-	-	-	-	-	-	-	1	-	*	*	*	1
Pembroke Urban District	Nov. 7	-	-	-	-	-	-	-	-	1	-	1	-	*	-	-	2
	Nov. 14	-	-	-	1	-	-	-	-	-	-	-	-	*	3	-	4
	Nov. 21	-	-	-	-	-	-	2	-	1	3	-	-	*	-	-	6
	Nov. 28	-	1	-	1	-	-	-	-	-	-	-	-	*	-	-	2
Blackrock Urban District	Nov. 7	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Nov. 14	-	*	*	2	-	-	-	-	-	-	-	-	*	*	-	2
	Nov. 21	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Nov. 28	-	*	*	1	-	-	-	-	-	-	-	-	*	*	-	1
Kingstown Urban District	Nov. 7	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
	Nov. 14	-	*	*	1	-	-	-	-	-	-	-	-	*	*	*	1
	Nov. 21	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
	Nov. 28	-	*	*	-	-	-	1	-	-	-	-	-	*	*	*	1
City of Belfast	Nov. 7	-	*	*	7	-	-	7	-	7	11	3	1	*	*	-	36
	Nov. 14	-	*	*	11	-	-	2	-	2	13	4	-	*	*	-	32
	Nov. 21	-	*	*	10	-	-	9	2	2	9	4	-	*	*	1	37
	Nov. 28	-	*	*	17	-		5	1	3	6	6	-	*	*	-	38

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended November 28, 1908, 8 cases of measles were admitted into hospital, 10 patients were discharged, there was one death, and 41 cases remained under treatment at the close of the week.

Thirteen cases of scarlet fever were admitted to hospital, 7 were discharged, there was one death, and 42 cases remained under treatment at the close of the week. This number is exclusive of 16 convalescents from the disease under treatment in Beneavin, the Convalescent Home of Cork Street Fever Hospital.

Ten cases of diphtheria were admitted to hospital, 6 were discharged, there were 2 deaths, and 24 patients remained under treatment at the close of the week.

Ten cases of enteric fever were admitted to hospital, 20 were discharged, there was one death, and 93 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 10 cases of pneumonia were admitted to hospital, 10 were discharged, there were 2 deaths, and 27 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, November 28, in 76 large English towns, including London (in which the rate was 15.8), was equal to an average annual death-rate of 15.6 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 16.4 per 1,000, the rate for Glasgow being 16.4 and for Edinburgh 16.4.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended November 28th. From this Report it appears that of a total of 81 cases notified, 51 were of scarlet fever, 12 of phthisis, 11 of erysipelas, 6 of diphtheria, and one of enteric fever. Among the 430 cases of infectious diseases in hospital at the close of the week were 319 cases of scarlet fever, 36 of phthisis, 31 of diphtheria, 16 of erysipelas, 12 of enteric fever, 3 of whooping cough, and one of measles.

Meteorology.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of November, 1908.

Mean Height of Barometer,	29.978 inches.
Maximal Height of Barometer (30th, at 9 a.m.),	30.403 ,,
Minimal Height of Barometer (22nd, at 9 p.m.),	29.456 ,,
Mean Dry-bulb Temperature,	47.3°.
Mean Wet-bulb Temperature,	45.3°.
Mean Dew-point Temperature,	43.0°.
Mean Elastic Force (Tension of Aqueous Vapour),	.280 inch.
Mean Humidity,	85.7 per cent.
Highest Temperature in Shade (on 11th),	59.6°.
Lowest Temperature in Shade (on 30th),	31.1°.
Lowest Temperature on Grass (Radiation) (30th),	27.0°.
Mean Amount of Cloud,	53.5 per cent.
Rainfall (on 12 days),	1.237 inches.
Greatest Daily Rainfall (on 13th),	.362 inch.
General Direction of Wind,	S.W., W.

Remarks.

A mild and open month, ranking third in the list of warm Novembers observed within the past forty-four years. The rainfall was very moderate—only 45.5 per cent. of the average, and the rain days also were comparatively few—70.6 per cent. of the average. During the first week quiet anticyclonic weather and light S.E. winds prevailed. In the course of the second week cyclonic conditions became established, the wind settled in S. or S.W., and there were frequent falls of rain, chiefly, however, of slight intensity. In Dublin, .362 inch was recorded on the 13th. A temporary chill occurred on the 14th and 15th, but changeable, mild and rainy weather prevailed over the greater part of Ireland and Scotland, as is usual during the prevalence of S.W. air currents. A severe storm—the first of the season—swept over the British Isles on the 21st and 22nd. The barometer sank to 28.7 inches in the storm centre between the Shetlands and Norway, and the S.W. winds of the system raised the temperature to 58° at some stations. During the fourth week a series of large and deep depressions passed across the ocean from Iceland to Scandinavia,

causing very unsettled conditions—squalls, showers, hail and thunder and lightening in the far North, and open, breezy weather in the south and south-east.

In Dublin the arithmetical mean temperature (48.1°) was 2.8° above the average (45.3°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 47.3°. In the forty-four years ending with 1908, November was coldest in 1878 (M. T. = 38.2°), and in 1870 (M. T. = 42.2°); warmest in 1899 (M. T. = 50.7°), and in 1881 (M. T. = 50.3°). In 1907 the M. T. was 44.6°.

The mean height of the barometer was 29.978 inches, or 0.118 inch above the corrected average value for November—namely, 29.860 inches. The mercury rose to 30.403 inches at 9 a.m. of the 30th, having fallen to 29.456 inches at 9 p.m. of the 22nd. The observed range of atmospheric pressure was, therefore, .947 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47.3°, or 7.2° below the value for October, 1908. The arithmetical mean of the maximal and minimal readings was 48.1°, compared with a thirty-five years' (1871–1905) average of 45.3°. On the 11th the thermometer in the screen rose to 59.6°—wind, S.S.W.; on the 30th the temperature fell to 31.1°—wind, calm. The minimum on the grass was 27.0° on the 30th.

The rainfall was 1.237 inches on 12 days—the rainfall and rainy days were much below the average. The average rainfall for November in the thirty-five years, 1871–1905, inclusive, was 2.720 inches, and the average number of rainy days was 17. In 1888, 6.459 inches fell on 26 days. On the other hand, the rainfall in 1896 was only .664 inch on 9 days. In 1907 the rainfall was 2.584 inches on 14 days.

High winds were noted on 8 days, and attained the force of a gale on the 21st and 22nd. The atmosphere was more or less foggy in Dublin on the 4th, 5th, and 30th. A solar halo was seen on the 3rd. Lunar halos appeared on the 3rd and 4th: a lunar corona on the 5th. Lightning was seen on the evening of the 22nd. Hail fell on the 24th.

The rainfall in Dublin during the eleven months ending Nov. 30th amounted to 22.013 inches on 179 days, compared with 15.378 inches on 141 days during the same period in 1887, 24.086 inches on 156 days in 1901, 27.812 inches on 190 days in 1902, 30.015 inches on 212 days in 1903, 20.678 inches on 172 days in 1904, 24.013 inches on 180 days in 1905, 21.001 inches on 185

days in 1906, 24.845 inches on 196 days in 1907, and a thirty-five years' average of 25.750 inches on 181 days.

At the Normal Climatological Station in Trinity College, Dublin, Mr. William J. Good reports that the mean height of the barometer was 29.978 inches, the range of atmospheric pressure being from 30.400 inches at 9 a.m. of the 30th to 29.469 inches at 9 p.m. of the 22nd. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 48.4°. The arithmetical mean of the daily maximal and minimal temperatures was 48.8°. The screened thermometers rose to 61.1° on the 11th, and fell to 30.6° on the 30th. On the 30th the grass minimum was 19.9°. Rain fell on 12 days to the amount of 1.156 inches, the greatest fall in 24 hours being .339 inch on the 13th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 48.1 hours, of which 5.5 hours occurred on the 8th, and again on the 14th. The mean daily sunshine was but 1.6 hours. The mean temperature of the soil at 9 a.m. was 48.3° at a depth of 1 foot; at a depth of 4 feet it was 51.2° at 9 a.m.

At Cloneevin, Killiney, Co. Dublin, Mr. Robert O'B. Furlong, C.B., states that 1.24 inches of rain fell on 12 days, compared with a twenty-three years' (1885–1907) average of 2.951 inches on 16 days. The maximal fall in 24 hours was .38 inch on the 13th. Since January 1, 1908, 23.30 inches of rain have fallen at this station on 176 days. The corresponding figures for 1901 were 26.10 inches on 161 days; 1902, 30.18 inches on 178 days; 1903, 30.05 inches on 203 days; 1904, 20.39 inches on 166 days; 1905, 25.95 inches on 167 days; 1906, 20.22 inches on 183 days; and 1907, 23.71 inches on 182 days.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 2.010 inches on 15 days. Of the total quantity .425 inch fell on the 14th.

Dr. Launcelot T. Burra reports a rainfall of 2.105 inches on 14 days at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow. The greatest fall in 24 hours was .410 inch on the 13th. The mean temperature for the month was 48.5°, the maximum being 60.1° on the 3rd, and the minimum 34.0° on the 30th.

The rainfall recorded at Clonsilla, Greystones, by Dr. Arthur

G. Price was 1.88 inches on 13 days. The greatest fall in 24 hours was .39 inch on the 13th. The mean temperature was 46.6°, the extremes being—highest, 60° on the 3rd; lowest, 30° on the 29th. Between 9 p.m. and midnight of the 21st the thermometer rose to 55°, having been no higher than 50° during the previous day.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 16 days to the amount of 1.56 inches, the greatest measurement in 24 hours being .53 inch on the 13th. In November, 1901, the rainfall was 3.53 inches on 8 days; in 1902, it was 4.61 inches on 17 days; in 1903, 1.93 inches on 14 days; in 1904, 1.26 inches on 11 days; in 1905, 4.35 inches on 22 days; in 1906, 1.60 inches on 15 days; and in 1907, 3.10 inches on 19 days. The mean temperature in the shade was 47.7°, the range being from 58° on the 11th to 31° on the 30th.

Dr. Christopher Joynt, F.R.C.P.I., registered 1.315 inches on 16 days at Leeson Park, Dublin. The maximum in 24 hours was .395 inch on the 13th. In November, 1905, 3.795 inches of rain had been recorded at this station; in 1906, 1.485 inches, and in 1907, 2.810 inches.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was .982 inch on 14 days—the greatest fall in 24 hours being .31 inch on the 13th. The mean shade temperature was 44.6°, the extremes being—highest, 55° on the 3rd; lowest, 26.5° on the 29th.

In the City of Cork Mr. William Miller returns the rainfall at 2.52 inches, or 1.36 inches less than the average for November. There were 16 rainy days. The heaviest fall in 24 hours was .60 inch on the 13th. Up to November 30th, the rainfall of 1908 amounted to 28.84 inches—that is, 5.13 inches less than the average for eleven months of the year.

At Dunmanway Rectory, Co. Cork, the Rev. Arthur Wilson, M.A., registered a rainfall of 3.45 inches on 17 days, the heaviest fall in 24 hours being 1.30 inches on the 27th. A brilliant afterglow occurred on the evening of the 28th, with belts of green, gold, yellow and red.

At the Ordnance Survey Office, Phœnix Park, Dublin, rain fell on 16 days to the amount of 1.295 inches, the largest measurement in 24 hours being .285 inch on the 21st. The total amount of sunshine was 79.6 hours, the most in one day being 7.3 hours on the 8th.

PERISCOPE.

HOME TREATMENT AND NURSING OF PULMONARY TUBERCULOSIS IN DUBLIN.

A MEETING of the Dublin Hospitals' Tuberculosis Committee was held on Tuesday, December 1st, 1908. The matters brought under consideration included the quarterly report of the two nurses engaged by the Women's National Health Association of Ireland solely for the nursing and care of pulmonary tuberculosis patients. The nurses have been engaged in this special work for only nine months, and during that time they have had under their care 214 families. They have paid 5,100 visits—their average weekly number of visits being 160. In over 40 per cent. of the cases attended the patients themselves requested the services of a nurse. This fact shows how these consumptive patients appreciated the work which the nurses are performing. Out of the total number dealt with, seventy-nine patients, or 37 per cent., showed distinct signs of improvement, and twenty-seven patients, or 12 per cent., have so far recovered that they have been able to return to their ordinary work. This means that practically half the patients (50 per cent.) derived distinct benefit from this system of home treatment—a truly gratifying record of good work done. In addition, the nurses have obtained admission for quite a number of patients into sanatoriums and kindred institutions, in most cases having themselves collected the necessary money for the maintenance of the patients in hospital. They have also distributed amongst the patients 130 sputum flasks, reported eight insanitary houses, and, through the help and hearty co-operation of the Public Health Department of the Corporation of Dublin, eighty-nine homes have been disinfected; in this way the nurses have done public health work of the best kind. The nurses during their visits give the patients and the patients' friends instruction as to ventilation, the best food to be taken and how to cook it, the cleansing and keeping clean of the home, the disposal of sputum, the precautions to be taken against infection, and—if the patient has recently settled in his present home—they find out the former abode, and get it disinfected. In addition to this they have in several cases been able to move the patients into healthier lodgings, or to obtain a second room for

them. With the assistance of the Women's Health Association Samaritan Committee, of which Mrs. A. M. Sullivan is President, the nurses have been able to render very valuable and material assistance. In the case of four families the rent has been paid while the bread-winner was in a sanatorium, and in five instances the children have been boarded out while the mothers were away under treatment. No fewer than eighty-seven families received nourishment in the shape of milk, eggs, meal, and such like foods, and fifty-six families were assisted with such articles as beds (so that the patients could sleep alone), and bedding, shoes, clothes, &c., have been given where required. The nurses have also been the means of getting employment for twelve patients, or members of their families, and have obtained admission for ten children of deceased parents into schools or orphanages. The Dublin charitable organisations for the relief of the poor have willingly assisted in every possible way. For instance, the Fresh Air Fund enabled twenty-seven children of parents under the nurses' care to be sent to the country. The Society of St. Vincent de Paul has rendered splendid assistance, and the Homes for the Dying have provided a peaceful refuge for many poor sufferers in the advanced stages of the disease. Just at this time of year the nurses report that in a great number of cases they find the homes they visit suffering from absolute want, so much so that in many cases their patients and their families are actually starving. The Committee consider the report of this experimental effort in the home treatment of tuberculosis is most satisfactory and encouraging, and feel that a very useful and practical work is being thereby done in Dublin. They wish it to be widely known that the Samaritan Committee will thankfully receive contributions which will enable the nurses to bring relief and help to invalids whose sad conditions must surely appeal to all. Such contributions should be sent to Mrs. A. M. Sullivan, 60 Dartmouth Square, Dublin.

CHONDROTOMY IN APEX TUBERCULOSIS.

In the *Medical Record* for July 18th, 1908, is an editorial on this subject. Freund and Hart have shown that maldevelopment, as shortening and early ossification of the first rib, is a marked predisponent to infection of the apices, and both authors have found in many cases of healed tuberculous disease of the apices that false joints have formed at the cartilage of the first rib. Freund

has proposed to imitate this process by the artificial production of a false joint. In the *Münchener medizinische Wochenschrift* for June 23rd Dr. Hans Seidel gives his experience of this operation. In two patients suffering from apical tuberculosis the mechanical interference with the ventilation of the apices was quite marked. He resected portions of the first and second ribs, and the patients showed rapid and progressive amelioration of symptoms and the disappearance of physical signs of apical tuberculosis, and gained in weight, and were discharged. "Dr. Seidel thinks that Freund's operation is indicated in all young individuals showing stenosis of the upper aperture of the thorax and tuberculous disease of the apices, and in older persons showing ossification of the first rib, especially if the usual treatment for tuberculosis has proved ineffectual, while the lesions seem to be confined to the upper portions of the lungs."

R. A. S.

THE NATIONAL UNIVERSITY OF IRELAND.—ELECTION OF CHANCELLOR.

THE Senate met on Thursday, December 17, 1908, at the Royal University Buildings. All the members were present. On the motion of the Rt. Hon. the Lord Chief Baron, seconded by Dr. Windle, it was unanimously resolved:—"That His Grace the Most Reverend Dr. Walsh, Archbishop of Dublin, be, and hereby is, elected Chancellor of the University." The Senate adjourned.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the College, held on December 15, 1908, the following gentlemen were elected Fellows:—John Henry Board, M.R.C.S. Eng., L.R.C.P. Lond., Bristol; Vincent Theodore Carruthers, M.B., Ch.B., Lieutenant R.A.M.C.; Stanley Dodd, M.B., M.R.C.S. Eng., London, W.; William James Fraser, M.B., Ch.B., Lieutenant Indian M.S.; Thomas M'Laren Galloway, L.R.C.S.E., Kirkcaldy; James Turner Gunn, M.B., Ch.B., Edinburgh; David Colvin Henry, M.B., Ch.B., London, S.W.; Ian Dalrymple Clark Howden, M.D., Dover; William Wilfred King, M.R.C.S. Eng., L.R.C.P. Lond., Bath; William Leslie, M.D., Alloa; Dan M'Kenzie, M.D., London, W.; Archibald Cotterell M'Master, M.B., Ch.B., Edinburgh; David Mann, M.B., Ch.B., Edinburgh; George

Porter Mathew, M.D., M.R.C.S. Eng., Port Elizabeth; John Patrick, M.B., C.M., Glasgow; Charles Augustus Eamonson Ring, L.R.C.S.E., Devon; Thomas Ritchie Rodger, M.D., Sanquhar; John Alexander Scott, M.D., Edinburgh; Miles Charles Cariston Seton, M.B., C.M., Edinburgh; Walter Heaton Smith, M.R.C.S. Eng., L.R.C.P. Lond., Wigan; Robert Henry Walton, M.B., Ch.B., Auckland; Horace Walshman Ward, M.R.C.S. Eng., L.R.C.P. Lond., Birmingham; William Richard Spencer Watkins, M.B., Ch.B., Penygraig, Glamorgan; and Alexander Waugh Young, M.B., Ch.B., Edinburgh.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1909, provided that an Essay deemed by the Committee of Award to be worthy of the Prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published. They must be typewritten, and must be received by the Secretary of the College, Thomas R. Neilson, M.D., on or before May 1, 1909. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1908 has been awarded to Dr. William T. Shoemaker, of Philadelphia, for his essay entitled "Retinitis Pigmentosa, with an Analysis of Seventeen Cases occurring in Deaf Mutes, including Laboratory Examinations of the Blood and Urine in Eleven Cases."

LITERARY NOTE.

Mr. Edward Arnold has just published a new, revised and enlarged edition of "The Diagnosis of Nervous Diseases," by Dr. Purves Stewart. The text has been revised throughout, and several chapters, with a number of fresh illustrations, have been added. The first edition was published two years ago.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*A Suggestion for a Three Weeks' Summer Holiday.* By JOHN BURGESS, F.R.C.S.I.; Examiner under the Conjoint Board of the Royal Colleges of Physicians and Surgeons, Ireland.

"BUT I am such a bad sailor, Doctor." This is the reply which I have over and over again got when, having been asked my opinion as to the way of spending a holiday, I have recommended a sea voyage in accordance with my firm belief that to the over-worked and anxious professional or business man the sea gives that perfect rest which can nowhere else be obtained, and which his nervous centres require to maintain their integrity.

Here let me at once dispel a delusion which the majority of the general public entertain. The individual who associates a sea voyage with his experiences in crossing the Irish Sea or the English Channel and that of a modern liner makes as great a mistake as one who would state that he could find no difference between the motion of a first-class motor car and that of an old-fashioned bus.

The choice of a route must altogether depend on the

person concerned. Nowadays, thanks to the development of steam navigation, Norway, with its magnificent fiord scenery, the Canaries, the Mediterranean, and many other places come easily into the scope of a short holiday. If time be very limited the south coast of England presents much to interest.

Without forcing my opinion on anyone, I think a sea voyage should comprise three things—a sufficient time at sea to allow physical and mental rest without becoming monotonous. A change of climate, whereby we see life under conditions different from our day-to-day experience. Beautiful scenery which will prevent tedium and give the mind something to work on.

For a three weeks' holiday I know of nothing which fulfils the conditions to which I have referred better than a trip by the Allan Line to Montreal. Leaving the northern headlands of Ireland, a few hours over three days brings us in sight of the American Continent, which is practically in sight all the time until we arrive at our destination.

The passenger passes through the Atlantic climate, cooler and more bracing than ours, into that of the lovely Canadian summer.

The scenery from the rugged Belleisle with the dreary Newfoundland hills, covered by pine scrub, and succeeded by that of the magnificent St. Lawrence, rich with historical associations, must satisfy the most fastidious lover of the beautiful in nature.

Before we start the voyage I wish to give my own views on a subject much written on—that is, sea-sickness.

There are two forms of this malady—one due to the want of accommodation of the muscles of the individual to the ship's motion, varying in degree in different people, and in my experience more common in dark than in fair persons. The second is what might be called the hysteria of the sea. It is most common in, though by no means confined to, the female sex. These are the people who commence their symptoms before the steamer starts.

Their will power is so low in the human scale that they can only be benefited by Christian Science, hypnotism, or some other power by which a strong will overcomes a weaker.

This class, if they can possibly avoid it, ought never to go to sea, but fortunately for the general travelling public they are exceptional.

I have seen two extreme cases of this—a Spanish lady who was ill all the way from Corunna to Havana, and a rancher from Arizona, who appeared on the deck of the Cunard steamer for the first time as she entered the bay of New York, after, I am bound to say, a stormy "fall" passage, looking to me to present that ghastly face of a person who had nearly bled to death.

To return to the ordinary form, the remedy is comparatively easy. The first thing to do is get your sea legs, and do this as soon as possible. If there is any motion on this is best accomplished by taking someone's arm who is used to the sea and walking up and down the deck on the weather side, and if there be much nausea keeping your hat off. In most cases the unpleasant feeling passes off in half an hour to an hour if the above be persevered in.

Do not make the fatal mistake of going to your state room to lie down. This prolongs indefinitely this distressful condition. Remember accommodation to the motion and fresh air are the only nostrums for sea-sickness. Do not take much fluid of any kind, and lastly do all *you can to prevent vomiting.* You feel it would make you better, and so it would, for the time, but it is a false security, for in my experience if emesis occurs three or four times at short intervals the stomach, so to speak, takes charge itself, and a highly irritable condition results for days, during which practically no food can be taken.

There are some curious features in sea-sickness, two of which I have repeatedly noticed were the exaltation of the sense of smell preceding the nausea, and in some the very sudden disappearance of the latter followed

for days by extreme craving for food which the ordinary meals do not satisfy.

It may seem a bold statement to make, but I do so without reserve, that given moderate weather, which is the rule during summer, and adopting the rules I have pointed out, sea-sickness is as impossible on one of those magnificently ventilated, sanitary, up-to-date steamers as it would be in one's own home.

The only danger of sickness - not of the sea this time - which may occur is from eating too much food, which at very short intervals of a few hours all day is presented to one in the most appetising way.

Starting from Moville, we pass the bare, rocky, savage-looking headlands of Donegal until Innistrahul, with its lighthouse and peculiar pyramidal rocks to the westward, intervenes between us and the mainland. Here the Irish coast tends to the south-west, and the light on Tory Island flashes us a good-bye.

By this time most passengers have got accustomed to the motion, and betake themselves to the different forms of amusement common to ship life (reading, shuffle-board, deck quoits, &c.) and generally settle themselves down for the Atlantic passage.

The Atlantic to me is never monotonous. There is, so to speak, a continuous variety of scenery in this great desert of water, the showers chasing each other across its surface with their brilliant rainbows, the dark blue tint of the water occasionally black from the passing cloud, the white and green tops of the breaking seas, while all the time you are breathing in what Kingsley calls "the aerial wine," make me regret when the land looms in sight and the Western Ocean is astern.

Where can you sleep as at sea? That well-ventilated state-room, with the gentle motion to soothe you, and the waters outside making a lullaby is such a luxury, that one naturally tries to keep awake for a time to realise that there are some joys in life after all worth living for.

Again, there are the glimpses of the denizens of the

sea to attract attention - porpoises in shoals jumping out of the water, occasional whales, and at times enormous schools of the latter.

Once as a passenger on the "Etruria," of the Cunard Line (July, 1896), on the day before reaching New York, we were passing through a herd of whales from 2 p.m. until it got dark at 8. They were almost motionless on the top of the water, and did not appear to mind the ship. If I remember rightly, some time after this voyage the same ship had to slow down, having got into a similar situation. I only saw this sight once before in the Straits of Belleisle, but there they were not nearly so numerous. It may be of interest to know that, according to Millais, at least eight different species of whales frequent these waters:— (1) Blue whale (*Balænoptera Sibbaldi*); (2) Common Rorqual (*Balænoptera physalus*); (3) Hump-back (*Megaptera osphygia*); (4) Rudolph Rorqual (*Balænoptera borealis*); (5) Lesser Rorqual; (6) Sperm whale (*Physeter macrocephalus*); (7) Pilot whale; (8) *Balæna Australis* (Southern Light whale).

The first, also called the "sulphur bottom," is the largest, and is found in great numbers round the south of Newfoundland, and at times up the estuary of the St. Lawrence. The long dive lasts twenty minutes, after which it makes several short ones. It spouts twenty to thirty feet.

The third variety is fairly common, being a very active whale, frequently lifting a great part of its body out of the water, then coming down with such force that the water is churned into foam.

The days speedily pass, and the air becomes distinctly colder, and here and there through the mists icebergs loom up as we approach the bleak, fog-laden coast of Labrador.

First, Belleisle appears, with its cliffs bare of vegetation, rising sheer from the surface of the ocean, a sullen-looking outpost of the Western Continent; then, on the other side, Cape Bault, a sandy point on Isle Quirpon, the

most north-eastern portion of Newfoundland. These were formerly known as the dreaded Isles of the Demons, mentioned by the chronicler, Thivet, said by him to be frequented by infernal creatures with wings, horns, and tails, who perched on the spars and rigging of ships approaching, and by their clamours filled the unfortunate sailors with consternation.[a]

It was on Belleisle Roberval, in 1542, abandoned his niece, Marguerite, and her lover. The story of their being attacked over and over again by fiends and protected by Divine intervention is too well known to be related.[b]

Now, as we pass close along the Labrador side here the wilderness is before our eyes except for the few huts of the "Liveyeres"[c] on the shore; the peninsula is solitude, untrodden by any except a few wandering Indians, and perhaps a white trapper. A series of deep glens ascend from the coast to a moderately high range of mountains some distance inland, thickly covered by dwarf pine, presenting in the hollows large patches of snow—a significant reminder under an August sun of what the rigour of winter must be in this northern land. The coast soon bends to the north-west, and is lost sight of, the west coast of Newfoundland being still visible on the other side.

The next land which appears is Anticosti, a very low-lying island, looking like a dark streak on the waters of the gulf 140 miles long. Soon after leaving this behind the Gaspé coast rises on our left, and we are in the St. Lawrence.

A description of the great river is completely out of the province of a short paper like this, and is one to which only a guide-book could do justice, so I merely intend to touch on a very few of its bits of delightful scenery.

South of the Gaspé headland, which now stretches out on our left, lies the Baie des Chaleurs, memorable as the extreme point reached by Jacques Cartier on his first voyage in 1535.

[a] *Le grand insulaire et pilotage d'André Thivet.* Paris. 1586.
[b] *Les Nouvelles de Marguerite de Valois.*
[c] Corruption of the words "live here."

The north shore is not visible. A chain of moderately high mountains, covered by pine forests, extends on the south shore. These are the mountains of St. Anne. Here and there ravines give us glimpses of the interior, and at the point where their streams flow into the St. Lawrence several scattered cottages constitute a settlement. At Rimouski, 180 miles from Quebec, we land the mails and take the pilot. Close to here on the north shore, at Egg Island, Admiral Walker's fleet, which sailed to attack Quebec, was wrecked in 1711, and 800 lives were lost, it is supposed, from careless navigation.

From this point the river is very picturesque. One hundred and thirty miles from Quebec we pass the mouth of the Saguenay. This is a beauty spot of the river, especially if seen near sunset. Here on the north shore the Laurentian Mountains form the bank of the river, rising precipitously from its surface, cleft by the gorge of the Saguenay—the contrast between these dark masses shadowing the St. Lawrence making the Saguenay like a river of Hades as it issues from its gloomy gorge, while no sign of habitation meets the eye, with the south shore bathed in sunshine, with the pretty little town of Rivière de Loup—so called from the number of seals (*loups-marins*) which frequented this part—with its white houses and church, the country, open all round, showing by its numerous houses and churches an extensive population, forms a beautiful effect of light and shade.

Inside the mouth of the Saguenay on the east shore is Tadoussac. This is the oldest continuously occupied European settlement in Canada. It was established as a trading post by Pontgravé and Chauvin in 1603. This part of the St. Lawrence seems to be a favourite haunt of the white whale (*Beluga borealis*). Numbers are seen as we ascend. They rarely attain to a length of twenty feet, and are very sluggish in their movements.

Further on the north shore is Murray Bay, eighty miles from Quebec, a favourite watering-place.

On the south shore we pass Isle Aux Coudres. This is

famous for being the site selected by Wolfe for a fortification in 1769, in view of a retreat from the investment of Quebec after his defeat by the French at Beauport.

As we steam past the western end of Orleans Island a magnificent panorama rapidly unfolds itself. To the extreme right the Montmorency Falls, 360 feet high, drop apparently into the river; then the Beauport flats, thickly populated, with a large church. Right in front, rising terrace by terrace, is Quebec, looking its best either at sunrise or sunset, with the St. Charles on the right and the St. Lawrence separating it from the heights of Levis on the left. This is the famous basin of Quebec replete with history. To the east of the Montmorency river on Orleans Island and the heights of Point Levis the English army under Wolfe took the positions. Montcalm had his camp on the Beauport flats. Thus, at this point the hostile armies were separated by the Montmorency river.

It seems inconceivable that the Governor (Vaudreuil) allowed Point Levis to be undefended. Of this fact the English under Monckton took immediate advantage, since from this point most injury to the city was done by the cannonade.

As we pass under the citadel which surmounts the rock an object comes in sight which must inspire every liberal minded man with disgust. On a board similar to that used in the United Kingdom for putting the notice on that trespassers will be prosecuted is the inscription: "Here Montgomery fell."

I know not if this is intended as an insult to the memory of a brave foe or merely a piece of thoughtless stupidity. However, it is extremely bad taste, and I hope the citizens of Quebec will see their way to commemorate the event in a way that would reflect more credit on themselves. The conduct of the French officers at Corunna in putting up a monument to Sir John Moore, on being informed of his death and burial, forms an object lesson.

Although Jacques Cartier wintered here in 1535,

Quebec owes its origin to Champlain, who formed a fort here in 1608.

It has seen trying times, being four times besieged and twice captured; it surrendered without a blow to Sir David Kirke in 1629; was restored to France in three years by the Convention of Suza; it drove off Phibbs, the Governor of Massachusetts (1690), who vainly attempted its capture; succumbed to the British arms in 1759; and successfully resisted Montgomery in 1775.

Passing underneath where the plains of Abraham dominate the cliff we reach Sillery. The cove here is called after Wolfe. It was here he landed his army and climbed the heights to meet his death early in the battle.

Nearly opposite is the mouth of the Chaudiere on the south shore. It was by the valley of this stream that General Benedict Arnold made his famous march in 1775 for the unsuccessful effort to capture the city which resulted in Montgomery's death.

Seven miles from Quebec, on the north shore, we pass Cap Rouge. Here it was in 1641 an attempt at founding a settlement called Charlotteburg Royal was made by direction of Roberval. The expedition sailed with Jacques Cartier. On his third voyage the latter wintered for the second time in Canada at this place. Here, as Roberval was not in evidence, it was abandoned the following spring.

In 1642 Roberval himself established a colony here which he called France Roy, and which was equally short-lived. Its exact fate is not known, as there are no documents which relate what occurred.

We now pass Three Rivers, founded in 1618, a lumber town with not much to interest.

The steamer now enters Lake St. Peter. The country is flat and generally uninteresting. Forty-three miles from Montreal Sorel appears on the south shore. This town is situated at the junction of the Richelieu with the St. Lawrence. It was by this route the dreaded warriors of five nations of the Iroquois again and again made

their way from their towns on the Mohawk, travelling by Lake George, Lake Champlain, and the Richelieu, to devastate the infant colonies which France had posted in the wilderness.

Fourteen miles from the end of our journey, the fine church at Varennis making a striking object on the left, we finally see the smoky quays of Montreal, and our voyage is soon ended.

Montreal, with a week to spare. What is the best to do? I take it for granted that the passenger does not intend putting in all the time in the city, especially in summer.

We will take the four cardinal points. North lie the beautiful Laurentian Mountains with innumerable lakes full of brown trout, with modest hotels, where, if the traveller does not mind putting up with plain food, and if he is fond of fishing, he is in a perfect paradise.

The altitude of the villages, which are peopled by French Canadians, makes them deliciously cool in the sweltering July days. The hotel tariff is a mere trifle, entitling you to the use of a boat on the lake near by. The class of scenery is of the type of the peak district of Derbyshire.

I can strongly recommend St. Faustin, eighty-four miles from Montreal on the Canadian Pacific Railroad line.

South we have the historic battlefields, the scene of the struggle between France and England. Passing along the narrow lake which bears the name of Champlain, the station of Ticonderoga marks the site where the old fort once stood which did such good service for France in again and again beating off the enemy. Further, Lake George, exquisitely situated, surrounded with well-wooded hills, appears. On its south shore once stood Fort Michel Henry, well known to all readers of "The Last of the Mohicans." Crown Point is a favourite place to put up at, being almost in the centre of the memorable region.

The traveller who chooses the east evidently has Quebec

and the Saguenay as his objective. Soon after leaving Quebec we pass through the primeval forest, and reach Roberval in eight and a half hours. It is usual to stay here for the night, then early next morning in about two hours the train takes us to Chicoutimi, then by boat down the Saguenay to Tadoussac, and to Quebec. This trip is excellent if one wishes to see the wilderness, and it is better to spend all the time over it, catching the steamer for home at Quebec. The Saguenay, one of the most remarkable rivers in America, is a cleft through the mountains of great depth; and is evidently due to seismic action. Its bed is at least six hundred feet below that of the St. Lawrence at their junction. Its banks are precipitous cliffs overshadowing its waters, which take on, in consequence, an inky colour.

I feel certain that 90 per cent. of all passengers with a week to spare, if left to their own choice, will choose to take the western route. Here are the Kiawartha Lakes. Muskoka, Georgian Bay, and Niagara.

Any description of this last wonder is beyond my powers, but as one who has been there sixteen times I may be permitted to give a few hints:—

Avoid guides. You get far more pleasure in taking it all in alone. Spend as long as you can afford here, because its grandeur is not apparent at once, and takes days to appreciate its magnitude. The best view is from the steamer "Maid of the Mist," which steams as near the curtain of the Horseshoe as most people care to go. There is nothing to be gained by the so-called going under the Falls. If you have moonlight the view from the Terapin Rock, to which there is a bridge from Goat Island, is truly grand. This is on the brink of the Horseshoe, and looking over you can get some idea of the precipice which the river flows over. The gorge trip should be taken going down by the Canadian and returning by the American side, when a fine view of the whirlpool and the whirlpool rapids can be obtained. Lastly, take the car on the Canadian side to the Chippewa

reservation for the view approaching the Canadian Fall on the return journey.

In conclusion I must express my regret to have skimmed over so many scenes of interest and left out others completely. My only excuse is that the region we have passed through is so replete with all that is grand in nature that it would require an abler hand than mine to give it one-tenth part of what is really its due, and I will feel that this humble attempt will have attained all I could wish for it if it draws the attention of my professional brethren to what I am sure they will agree with me is an ideal holiday.

ART. V.—*Remarks on the Present-day Diagnosis, Treatment, and Prognosis of Syphilis.*[a] By J. JOHNSTON ABRAHAM, M.D. (Dubl.); Resident Medical Officer, London Lock Hospital, Harrow-road, W.

THE question as to how soon a presumed primary syphilitic lesion should be treated after it had made its appearance was a somewhat debatable point until quite recently, on account of the frequent difficulty of exact diagnosis before the appearance of definite secondary manifestations. When Ricord published his classical researches and differentiated for the first time between the soft, or non-infecting, sore and the contagium of primary syphilis, the distinguishing points given were: that the "chancroid" was soft in consistence, often multiple, painful, appeared a few days after infection, and was liable to be followed by suppurating bubos in the nearest lymphatic glands: on the other hand, the "hard chancre," as its name would imply, was firm, single, appeared often as late as four to six weeks after infection, and was followed by hard, indolent bubos in the nearest lymphatic glands.

Clinical experience, however, demonstrated that sores

[a] A Thesis read for the Degree of Doctor of Medicine in the University of Dublin on December 19, 1908.

which at first appeared soft, afterwards often took on a firm consistence, and the subsequent appearance of secondary symptoms proved them to be syphilitic.

Again, reliance on the supposed length, or shortness, of the incubation period, based on the patient's statements, has been found practically useless as a differentiating point in many cases, because the patient either has been liable frequently, from his habits, to infection, and so cannot definitely fix the date of inoculation, or gives for some cause or other a wilfully inaccurate history.

Finally, the dictum that the hard chancre is single, though true in the vast majority of cases, has been shown not to be always so in man, whilst in women the appearance of contiguous chancres, one on either labium majus or minus, is a matter of quite common occurrence (Shillitoe).

The discovery of the specific organism of soft chancre by Ducrey did not help as much as might have been expected, as the organism is difficult to find, grows badly on most media, and even when found is not contra-indicative of syphilis, as the syphilitic virus has often been implanted on a chancroid basis.

For these reasons, therefore, most physicians declined to urge active anti-syphilitic treatment in doubtful cases, preferring to wait till secondary symptoms clinched the diagnosis.

Recent advances, however, notably the researches of Schaudinn and the serum reaction of Wassermann, have put a new and apparently satisfactory weapon in the hands of the clinician, and now the discovery of the Spirochæte pallida (Spironema pallidum) in a scraping of the chancre, or a positive Wassermann, may be considered sufficient justification for immediate specific treatment.

Wassermann's Reaction.—In practice the details of Wassermann's reaction are cumbersome and constantly being altered with the idea of simplification by its author and his pupils. The principle, however, is simple, and it alone need concern us here. It is as follows:—

A suitable animal (Wassermann originally used a

sheep) is inoculated with alcoholic extracts of a syphilitic fœtus, and from it a serum is prepared. This serum is a hæmolysin—that is, it has the power of disintegrating red blood corpuscles. It is, moreover, a specific hæmolysin: it will disintegrate the red blood corpuscles of a normal individual, but has no effect whatever on those of a patient suffering from syphilis. If, then, blood drawn from a suspected case has its corpuscles destroyed by the serum that case is free from syphilis.

A caution is necessary, however. The patient must not have had any mercurial treatment before trying the reaction, as mercury seems to inhibit the hæmolysin. Experience has yet to discover, however, whether the reaction will prove as useful as the Widal test in typhoid.

Once a diagnosis has been arrived at the question of treatment immediately forces itself upon one: and here two drugs, mercury and iodine, or one of the iodides, have stood the test of time, whilst a third, arsenic, has lately come into much prominence. It is, therefore, on the various methods of using these, their indications, and contra-indications, I wish briefly to dwell.

Preparations for Treatment by Mercury.—Before a course of mercury is begun the patient's weight should be taken, as on it largely depends the dosage, short of salivation. Similarly, it should also be taken week by week whilst under treatment—a rise indicating that all is well and the drug can be pushed with safety, a fall, especially if continuous week by week, pointing to protoplasmic poisoning, and indicating reduction, temporary cessation, or complete stoppage of the drug according to the severity of the case. Undoubtedly one of the main causes which threw this invaluable remedy into temporary disrepute, and incidentally stimulated the use of potassium iodide, in the middle of last century, was the enormous over-dosage of mercury practised—many of the specimens preserved in museums of the supposed ravages of the disease being excellent examples of mercurial necrosis produced by the

physician and not by the supposed virulence of the contagium.

Incidentally it may be noted that fat patients, especially women, stand mercury remarkably well, whilst thin patients, otherwise healthy, very quickly, even with small doses of mercury, show poisonous symptoms.

For practical purposes, therefore, women under eight stone and men under ten should be treated with especial care, and the minimal dosage capable of suppressing symptoms should be used.

Condition of the Patient's Teeth.—A second point which must be carefully attended to is the condition of the patient's teeth. It is remarkable how free from stomatitis patients with good, sound, teeth remain under treatment. On the other hand, the presence of one or more carious stumps causes endless trouble when any systematic effort to keep up continuous treatment—including even the much-lauded injection methods—is attempted. As a consequence of this knowledge all patients admitted into the London Lock Hospital have their teeth examined on admission, all carious stumps are carefully noted on a special dental chart, and treatment is not pushed till they have been through the dentist's hands.

Since adopting this as a routine we have practically got rid of the endless troubles from salivation, gingivitis, stomatitis, neuralgia, dental ulcers, &c., formerly so common in the underfed patients, often with an alcoholic history, with whom we have to deal, and so have not the disappointment of stopping treatment for indefinite periods, and watching our patients' systems becoming gradually undermined by the continuous ingestion of septic fluids from the mouth.

As a further prophylactic, following the "Aix" custom, each patient is required to gargle his mouth, morning and evening, with a solution of alum, 15 grs. to the oz. This hardens the gums, allows of the frequent use of the tooth-brush, and prevents incipient gingivitis.

A common place for gingivitis to start is the base of the

two lower central incisors. When this appears it may be readily checked by painting the inflamed area daily with copper sulphate, 10 grs. to the oz.

A third condition—namely, the presence of albuminuria—is stated to be a contra-indication to the use of mercury. On this point one can speak only with caution. Personally we have never seen any bad effects from its use in the condition.

On the other hand, one must always bear in mind that the albuminuria may be a symptom of syphilitic nephritis, a condition not so rare as is generally supposed: and when this condition occurs, as in a case recently under the care of Mr. Arthur Shillitoe, the exhibition of mercury has an almost miraculous effect in clearing up symptoms.

Coming now to the methods of administering mercury, it may be given in six ways:—

(1) By inunction.
(2) By fumigation.
(3) By baths.
(4) By the mouth.
(5) By intramuscular injection.
(6) By intravenous injection.

Treatment by Inunction. This method is one of the most valuable at our disposal, and is largely employed by us, as undoubtedly patients can be very rapidly brought under the influence of the drug by its use, though it is still uncertain whether the mercury is absorbed by the skin or by inhalation. It is the method *par excellence* in the treatment of congenital syphilis in infants, and so satisfied are we with it that no other treatment is adopted in our children's wards. Unguentum hydrargyri, B.P., is used; the amount is a mass of the size of a hazel nut; it is spread on a binder, and applied daily. For adults we apply it as a collar, armlet, binder, or spica, and, as the patients are not confined to bed, the constant friction of movement, clothes, &c., rubs it in quite as well as massage.

The objections to its use are:

(1) Inability to regulate the dosage. In warm weather,

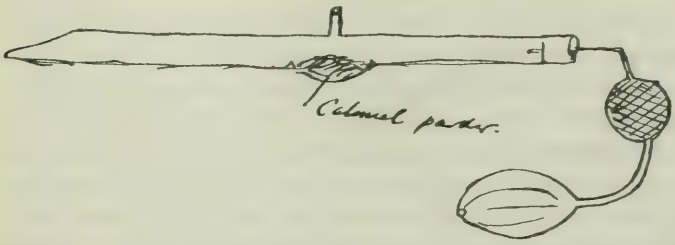
as during the past summer, with patients perspiring freely, we had to give it up owing to the rapidity with which salivation was produced even by small doses.

(2) A second objection is its uncleanliness. To avoid this we at one time tried Unguentum Hydrargyri Ammoniatum, but this ointment proved of insufficient strength except during hot weather.

(3) A third objection is that when massage is used the masseuse is liable to develop sore gums. This is obviated by using the binder as above.

But in spite of these drawbacks in cases where a well-marked papular or tubercular eruption is present this treatment is always deserving of trial owing to the rapidity of its action.

Treatment by Fumigation.—In this method calomel is used. Its usefulness is most marked in the treatment of



vulvar or peri-anal condylomata, in extensive secondary ulceration of the fauces, in vaginal chancre, or chancre of the os. Large cauliflower masses of condylomata will yield to a daily fumigation of five minutes in from ten to fifteen days. It is best applied as follows:—

A thick glass tube, eighteen inches long, is drawn out to a blunt point at one end, there is a bulb in the centre of the tube for the calomel powder, and an inflating apparatus, like that of a Junker's inhaler, is attached at the other end.

The calomel receptacle is heated with a spirit lamp and the sublimed vapour is puffed directly on to the sores.

In practice this method is usually combined with one

of the other constitutional methods—*e.g.*, pills. It is quite painless.

It is stated, however, by Mr. Arthur Shillitoe that in some cases where iodides have been given during the course of fumigations much pain has been experienced. This pain disappeared when iodides were stopped.

Baths. This method combines the effects of calomel fumes with a vapour bath.

The patient is enveloped in a waterproof sheeting, and 30 grains of calomel are sublimed over a water bath underneath the patient's chair. Treatment lasts half an hour, and is continued daily. After a bath the patient is confined to bed for two hours.

This treatment is especially indicated in cases of ecthymatous ulceration of the lower limbs and arms. When these have cleared up the baths are stopped and treatment by the mouth adopted.

Treatment by the Mouth.—This is by far the most usual method, especially in private practice, on account of its great convenience. Of pills the most powerful is the Pil. Hydrargyri, B.P. It contains 30 per cent. of mercury. As manufactured, however, it is often so insolubly coated that it is passed unchanged per rectum. It should, therefore, be prescribed fresh, uncoated, in a soft pill mass easily flattened by pressure between finger and thumb. We use two grains per diem for patients under eight stone, and three to four grains for those over, according to weight, &c.

Another much used pill is the basic salicylate of mercury. It contains 60 per cent. of mercury, and is given in doses of one-fifth of a grain *bis terve in die*.

Its advantages over the official pill are that it never causes diarrhœa or griping, salivation and gingivitis are uncommon, it is rapidly absorbed without disturbance of the gastric mucous membrane, and it relieves the vague osteocopic pains of secondary syphilis very rapidly.

Its disadvantages are that it is not a very powerful pill, and in our experience condylomata and mucous plaques not infrequently develop while under its influence.

Tannate of Mercury, in doses of one to two grains twice daily, has the advantage of being insoluble in the stomach and soluble in the jejunum. It is useful, then, when the Pil. Hydrarg. cannot be taken. Hutchinson's pil—Hyd. c. Cretâ—as prescribed by Hutchinson, in quarter-grain doses every hour or two hours, is not much used by us except in cases of diarrhœa, where, combined with opium or Dover's powder, it often proves extremely useful. Diarrhœa, however, from the use of the usual mercurial pills is in our experience uncommon.

Owing to the convenience of pills, mixtures are not much used. But in cases of secondary iritis it has been our experience that the Liquor Hydrargyri Perchloridi, usually combined with iodides, has a more rapid effect than the insoluble preparations; and the same is true in cases where one wishes to get rid of a rash on the face as quickly as possible.

Treatment by intramuscular injections, although practised in Italy as early as 1825, was soon discontinued, owing to the ignorance of antiseptic precautions then prevailing. It has recently been revived largely in this country and on the Continent, more especially in military practice.

The most suitable site of injection is the gluteal region, in the area above a line between the anterior and posterior superior iliac spines (Lane's line). By keeping strictly to this area the hip-joint cannot be entered, and the patient is able to sit about in comfort after the injection. Two varieties of mercurial injections we use—(1) Soluble; (2) Insoluble.

Of soluble preparations those most used have been:—

(1) Sal Alembroth, 10 minims of a 5 per cent. solution twice weekly.

(2) Hydrargyri Perchloridum, $\frac{1}{32}$ gr. in 10 minims every second day.

(3) Hydrargyri Succinimidum, $\frac{1}{4}$ gr. in 10 minims every second day.

The advantages of these preparations are the rapidity with which they are absorbed.

Their disadvantages are:—

(1) They have to be injected every day or every second day, entailing much trouble to both patient and surgeon.

(2) The difficulty of maintaining asepsis owing to the frequency of the injections.

(3) The great pain produced.

This is the really great objection to their use, and is especially so in the case of the perchloride—intense pain like sciatica being produced, and a brawny induration appearing at the puncture point without any evidence of sepsis. On account of this pain it is impossible to induce patients to submit to the treatment for any length of time, and we have entirely given up the use of soluble mercurials.

Of insoluble preparations two only need be mentioned—

(1) *Calomel cream*, prepared after the formula of Lambkin.

(2) *Oleum Cinereum* (grey oil), a preparation of metallic mercury in olive oil stiffened by various animal fats, especially palmitin.

Of these two preparations calomel cream is much the quicker in its action, and so is indicated in cases with extensive secondary ulceration. It is given in injections of 10 to 15 minims, containing $\frac{1}{2}$ to $\frac{3}{4}$ grain of calomel, once a week. It is much less liable to be followed by septic induration and inflammation around the injection point than is the case with oleum cinereum: but the great objection to its use is that in some 30 per cent. of cases it is followed by acute pain. This pain differs from that produced by the soluble mercurials in that it comes on on the third day after injection and not immediately or within twelve hours afterwards as with perchloride. On account of the pain produced Fournier condemns it root and branch, stating that 90 per cent. of his cases developed pain. We, however, are a more phlegmatic people than the French, and it has been noticed that in our cases they were Jewesses, Frenchwomen, and Italians who usually complained.

Nevertheless, on account of the undoubted pain produced, for routine treatment, we have fallen back upon grey oil (oleum cinereum), and find it most satisfactory. It is compounded in such strength that 10 minims contain one grain of Hg, and so the dosage is 5 to 10 minims per week. It is practically painless, but unless careful antiseptic precautions are taken is liable to be followed by painful induration going on to suppuration at the seat of puncture. These brawny areas heal, however, rapidly on incision and fomentation.

The advantages of the treatment are:—

(1) The absolute knowledge that the patient is getting the mercury. This is why the treatment is so useful amongst soldiers and hospital patients, whose mental calibre is so poor that they often throw away, or forget to use, the medicine supplied them.

(2) Salivation and gingivitis are comparatively infrequent, even in cases with septic mouths.

(3) Symptoms are rapidly got under control.

The disadvantages are:—

(1) The impossibility of calculating the rapidity of absorption. Each patient in this respect is a law unto himself.

(2) Though gingivitis is rare, when it does occur there is great difficulty in curing the condition, as the surgeon has no means of preventing the absorption of mercury already injected.

(3) It is probable that it has no effect in preventing abortion.

This is an exceedingly important point, on which more evidence is required. Our cases are too few to dogmatise. One case, however, which had been under weekly injections continuously for eight months was delivered of a still-born fœtus, in which enormous numbers of spirochætes were seen in smears taken from liver, spleen, and bone marrow.

As to the length of time injections should be continued opinions vary greatly. Army surgeons in India find that

gingivitis becomes troublesome if they are continued for more than six weeks.

In this country, following the lead of Lambkin, thirteen weeks is considered sufficiently long to prevent active symptoms recurring. It was even suggested that if the case was seen and treated sufficiently early this was enough to kill the spirochæte. Unfortunately, this has been found to be incorrect; and some of the most marked cases at present under treatment here are recurrences after this so-called "full-course" of treatment. Consequently, we have continued injections indefinitely provided the patient's weight does not recede, and no signs of gingivitis ensue. One patient recently discharged had had sixty-five injections of grey oil, and left the hospital two stone five pounds weightier than on admission.

Intravenous Injections have now been given up by most surgeons. Soluble mercurials were used, but difficulties in getting the patient's consent, irritant diarrhœa, the necessity of daily injections, and the constant risk of thrombosis and pyæmia, narrowed the field of usefulness so much that it seemed unjustifiable to continue.

Iodine and the Iodides.—The subject of the use of iodine and the iodides may be briefly summarised thus:—

(1) It is now generally admitted that their chief usefulness is in the third stage: combined with mercury they may be useful in the secondary: in the primary they are useless.

(2) Potassium iodide is the most useful of the salts, but on account of its depressing effect it should always be combined with ammonium carbonate, as suggested by Sir James Paget.

(3) The combination of sodium and ammonium iodide with small doses of arsenic is less liable to produce symptoms of iodism than the most powerful salt.

(4) When an iodide rash appears doubling the dose is useless. Since adopting the suggestion of Ward, iodide rashes have practically disappeared from our hospital. The patient is instructed to drink half a pint of hot water

half an hour before taking iodides, following the drug with an equal quantity of hot water fifteen minutes afterwards.

(5) In cases of mercurial stomatitis iodides should not be given, as thereby the system is flooded with a soluble mercurial. Instead magnesium sulphate in the form of the Mist. Ferri Laxans of most hospital pharmacopœias is given, with frequent gargles of peroxide of hydrogen.

(6) Instead of the iodides, iodine, in the form of "Iodopin" (iodine in oil of sesame), is often useful when the weight is falling, and this is especially so with regard to combinations of iodine and glycogen such as "Iodolose."

(7) In the occipital headaches so frequently complained of in the secondary period, iodides have a marvellously remedial effect.

(8) When gummata have been cleared up under the acton of iodides, small doses of mercury should be continued for some months. Otherwise the tendency to relapse is great.

Arsenic in Syphilis.—This drug has recently come very much into prominence in the treatment of syphilis.

In the form of Fowler's solution it has, of course, been used for years, combined usually with the iodides. But it was the fancied resemblance between the spirochæte and the parasite of sleeping sickness (*Trypanosoma gambiense*) and the known effect of organic preparations of arsenic, particularly atoxyl, in this condition that suggested the use of arsenic as a substitute for mercury in the treatment of syphilis.

Brilliant results from the injection of atoxyl have been recorded by numerous Continental physicians, particularly Uhlenhuth and Hallopeau. But, on the other hand, fatalities, such as acute arsenical poisoning, blindness, deafness, paraplegia, &c., in certain cases showed that as regards syphilis at any rate otoxyl was certainly not deserving of its name in all cases; and accordingly English surgeons have been loth to use it.

There is a short account of four successful cases in the *British Medical Journal* of December, 1907. But it is

largely due to the initiative of Lambkin that it has recently been much before the medical public. Lambkin used atoxyl first, and later another organic aromatic preparation of arsenic of the arylarsonate group which was a close imitation of atoxyl, containing 22.8 per cent. of arsenium, said to be much less toxic than atoxyl, and to have one-fortieth of the toxicity of arsenious acid.

Results published in the *Journal of the R. A. M. C.* for April, 1908, the *British Medical Journal* of August 15th, 1908, and the *Lancet* of December 5th, 1908, would indicate that the treatment was worthy of an extended trial. Accordingly, we put some twenty cases on this new treatment, using two of these proprietary articles, *Soamin* and *Orsudan*. All the trials were carried out on women, and the amount injected was 10 grains twice a week till 100 grains were given.

The following is a summary of the results and the conclusions drawn from them:—

(1) The injections are painless and are not followed by sepsis.

(2) In no case was any symptom of arsenical poisoning noted.

(3) Contrary to what one might have expected, knowing the extensive use of arsenic amongst dermatologists, the effect on rashes was practically nil. Knowing that rashes, particularly roseolous rashes, tend spontaneously to disappear, we could not satisfy ourselves that any improvement noted was due to the drug. In not one case had the rash disappeared when the course of 100 grains was completed in five weeks.

(4) In several of the cases mucous plaques and fresh condylomata appeared while the patients were under treatment; some condylomata, present when the treatment commenced, healed; whilst others remained *in statu quo* at the end of the course.

(5) In none of the cases could we honestly say that at the end of the course all symptoms of the disease had disappeared.

(6) Knowing the effects of mercury in the same period of time, we reluctantly came to the conclusion that arsenic in these forms was undoubtedly inferior to mercury.

(7) After the completion of a course mercury was given to all the cases, and we now find Lambkin in his latest publication advocated this also (*Lancet*, December 5th, 1908).

Our results, therefore, obtained in women contrast most unfavourably with Lambkin's published results in men. This may be due to—

(1) A greater resistance to arsenic in women.

(2) To the fact that, considering the lesser body weight of women, we used 20 grains per week instead of 30 as recommended by Lambkin for men.

Accordingly, we are now trying larger and more frequent dosage. But results up to now are not sufficiently advanced for comparison (December, 1908).

Having now considered the treatment, I should like, in conclusion, to review the opinions that are held as to the length of time treatment should be continued with the idea of eradicating the disease.

Opinions on this all-important subject still differ greatly. In the treatment of congenital syphilis many consider six months ample, because as a rule no symptoms appear after that period. It is probably much safer, however, to treat each child as an adult, and continue for the two years which general opinion considers the minimum for an adult. Neisser, indeed, as a result of his experiments on monkeys in Java, puts the minimum as high as four years. He bases his opinions on the following facts:—

(1) He found that a monkey suffering from the disease was incapable of re-inoculation with the virus as long as he showed symptoms of the disease. He could not produce a fresh chancre on a subject already infected.

(2) At the end of two years' treatment he still found he was unable to produce a fresh chancre in an infected subject, and therefore concluded it still had the disease.

(3) At the end of four years' treatment he discovered he was able to produce a fresh primary chancre, and that the monkey behaved as if it had developed syphilis for the first time. He therefore concluded that under treatment it had got rid of its first infection and was in the same state as a subject that had never had the disease.

Four necessary corollaries follow from the results of this experiment:—

(1) That syphilis once acquired and cured is no preventive of a second attack.

(2) That even four years' mercurial treatment is not a prophylactic against a fresh attack.

(3) That as it was impossible to reinfect till after four years' treatment, therefore four years' treatment is necessary to cure the disease.

(4) That the reason a patient who has once had syphilis does not develop it again, when exposed to infection, is because he is still suffering from the disease and requires further treatment.

It is obviously impossible to repeat the same experiment in man. But it may be possible to apply Wassermann's reaction for the same purpose. After stopping treatment for some months, to eliminate the effects of mercury, a blood test which produced a disintegration of the red blood corpuscles of the patient would indicate that he was at last free from all taint of the virus. Should future results show that this reaction can be relied upon to distinguish absolutely between the blood of a non-syphilitic, or cured syphilitic, and that of a patient still carrying the active virus in his body, we shall have a weapon of incalculable value in diagnosis and prognosis of this most protean of diseases.

I have to thank Mr. Arthur Shillitoe and Mr. Charles Gibbs for permission to make use of their cases for the material for this article.

Art. VI.—*A Study on Hand Sterilisation.* By Charles Greene Cumston, M.D., Boston, Mass.

(*Continued from page 33.*)

A long time ago, Kustner used rubber gloves for operative work on the cadaver as a prophylactic measure against infection of the hands, and since 1889 they have been recommended in general operative work by Halstead. The use of cotton gloves has been warmly recommended as well as those of Lisle thread, and personally I have employed them with satisfaction in aseptic operations after cleansing the hands according to the technique that I have already described. The great disadvantage, however, of cotton gloves is that they rapidly become blood-soaked, and must be changed several times during an operation. Owing to their rough surface, organs such as the intestine can be better grasped than with the bare hand or one covered with the rubber glove. Their great disadvantage is their very marked permeability, which only interferes with the passage of the bacteria through them, but does not prevent it; and then, again, the necessity of frequently changing them during an operation. Tactile sense is interfered with to some extent, although, personally, I have found it much less so than some surgeons would lead one to believe. Perthes recommends silk gloves reaching to the elbow, which can be easily sterilised by steam. They are supposed to interfere less with the sense of touch on account of their finer and more delicate texture.

In order to render gloves impervious Menge applied his method by selecting thin and very closely-woven gloves saturated with the paraffin-xylol solution, and by this means he prevented the passage of bacteria through them, as well as saturation of blood or fluid from the tissues. He used cotton and silk or plain silk gloves, which are to be first dried by heating, then placed in alcohol and afterwards in xylol. They are then placed in fresh xylol and afterwards in a paraffin-xylol solution for fifteen minutes; they are then removed, thoroughly wrung out and again dried in an oven. After this

the gloves can be easily sterilised, and have but little influence on the sense of touch or movement. They are not easily torn, and do not prevent evaporation of the perspiration. They are, however, somewhat permeable, which disadvantage they possess in common with those above mentioned.

Wölfler made considerable improvement in his treatment of gloves. For aseptic operations he employed leather gloves, which he disinfected by soaking for twenty-four hours in a 1 per cent. lysol or a 1 : 5000 sublimate solution. He realised that he deviated from the principle of asepsis, but points out the fact that in aseptic operations other operators immerse their hands in antiseptic fluid. In septic operations, vaginal or rectal examinations, he recommends the use of water-tight silk gloves covered with a layer of rubber. Thus the hands are protected from infection.

Schaeffer tested the permeability of leather gloves after artificial infection of the hands, and recommended their use on account of the satisfactory results obtained. Leather gloves have the advantage over cotton ones on account of their impermeability, and consequently fewer bacteria can pass through them. By means of impregnation of the antiseptic there is a certain preventive action on the development of bacteria. The hand is easily introduced, the glove fits smoothly, but is not absolutely safe, because after a time they become permeable, and for this reason rubber gloves were recommended. At first they were made of thick heavy rubber, similar to those used for autopsy, and naturally under these circumstances they diminish the tactile sense to a great extent, so that they were only recommended for subjective and objective prophylaxis.

The above-mentioned disadvantages are done away with by the use of thin, seamless rubber gloves. These are impermeable, can be easily and thoroughly sterilised by boiling, while at the present time their price has been reduced, so that they are within the reach of all. A careful disinfection of the hands, just as if no gloves were to be worn, is absolutely essential, because they may be torn or pricked by instruments, or ripped up on bits of bone or other hard material during operation.

At the German Surgical Congress, in 1900, Blumberg demonstrated a rubber operating glove which was roughened on the palmer aspect in order to allow one to get a better grasp on the instruments. Another great advantage is that the inside and outside of the gloves are roughened so that by turning them inside out they can be used on either hand. A very simple method, however, should one desire a rough surface, is to first place a rubber finger cot on each finger and then draw over a fine Lisle thread glove, and thus the most dangerous part of the hand—namely, the fingers—is protected by an impermeable coat.

An ideal glove, possessing all the advantages desired, does not and never will exist, but in my experience a medium weight rubber glove does not in any way interfere with the tactile sense, or in any part of the operation. I would, however, point out that too great a confidence must not be placed in them so as to lead one into a treacherous security, thus neglecting the most careful disinfection of the hands and forearms.

If one glances over the various methods of sterilisation it will at once become evident that they consist practically of two factors—namely, mechanical cleansing and chemical disinfection. Between them there are transitions, inasmuch as the mechanical or chemical process may be combined in one act or performed separately. The difficulty of rendering the cutaneous surface absolutely free from germs by any method which has been advocated up to the present time must be emphasised, and I believe that this is the general consensus of opinion among surgeons. This is simply due to the fact of the intricate histological structure of the skin. Then, again, it is practically impossible to render sterile the nails, with their sulci and the spaces around them. All scratches and abrasions, which are hardly visible to the naked eye, are prolific sources of germ infection, and all such foci which contain the most virulent material are with difficulty disinfected.

The object of mechanical cleaning is to partially remove the bacteria from those places where they have become deposited,

and also to render the latter more accessible to the action of antiseptics. Cutting and trimming the finger nails followed by their cleansing is the basis of all disinfection methods. Cultures made from the subungual space after disinfection will usually give rise to the growth of innumerable colonies of more or less virulent bacteria, and, since the space beneath the nails is usually the most difficult part of the hands to disinfect, too much stress cannot be laid upon the careful attention to this point. For this reason I strongly believe in having the hands carefully manicured at least once a week by a competent operator. It is better to first soften the parts by scrubbing with hot water and soap and a sterile brush, and then proceed with the cleansing and cutting process of the nails and subungual spaces. It has always appeared to me that an ivory nail cleaner is by far the best, and I cannot too strongly condemn the use of sharp iron ones, because they tend more to roughen the nail and subungual spaces, and I also believe that orange wood sticks have the same disadvantage, although to a less degree.

After the preparation of the nails the real mechanical cleansing is begun, which is usually carried out with brush, soap, and hot water. It should include the hands and forearms, particular attention being given to the palm and between the fingers, and, like the entire act of disinfection, it must be carried out with the greatest conscientiousness and attention. The temperature of the water recommended has varied greatly, but I believe that it should be as hot as the hand can comfortably bear. By the use of hot water the epidermis swells up and softens, so that the brush will remove its upper layers along with the bacteria therein contained.

Regarding the soap, one should use ordinary soda soap or green soap. According to Fürbringer the latter has the advantage of causing the upper dead layers of epidermis to swell up more than with any other soap, on account of the large amount of free alkali contained in it, while at the same time it absorbs the fatty secretions of the skin. Others object to soft soap, because when sand or a brush is used, it is supposed to interfere with their action on account of its

sticky consistency. If, however, one takes into consideration that it is rapidly dissolved, this objection would appear to be groundless.

The preparation of soap for hand disinfection is of great importance, and many are the formulæ which have been given. Mention has already been made of Schleich's marble dust soap, and all that I would say is, that the marble dust rubs off the upper epidermic scales and smoothes the skin without injuring it. The use of this soap is particularly adapted to rough hands, which are naturally extremely difficult to sterilise. Callous portions of the skin can be cleaned in a short space of time, and are rendered soft and smooth, so that the action of the antiseptic is not interfered with. Other forms of soap containing different kinds of sand have been recommended from time to time, but space forbids referring to them here. A manufactured soap called "Ubrigin" has been recommended by Van Nissen, its mechanical action being ascribed to the vegetable fibre it contains. This does not become decomposed, is impregnated with boric acid, and consequently the fine distribution of the vegetable fibre results in a deeper penetration into the pores of the skin than is possible with either brush or pumice. It is also said that it does not injure the skin. None of these soaps have any direct bactericidal power, but it is of importance to recall the fact that most soaps may be considered germ free, and that the development and multiplying of bacteria does not occur in any of them.

Experiments have been made to ascertain how much could be done with the addition of some antiseptic to the soap, and in this connection I would particularly call attention to a preparation introduced by Reverdin and recommended by Bottini. It is intended to combine a disinfecting action by the addition of zinc sulphocarbolate, the formula being as follows:—Olive oil, 72 parts; liquor caustic soda, 24 parts; liquor caustic potash, 12 parts; zinc sulphocarbolate, 2 parts; essence of rose, 9.5 parts.

The exponent of this method insists upon the certainty of its disinfectant properties as well as its non-irritating action on the skin, for which reason its use in certain affections of the cutaneous surface is indicated.

By the use of only a brush it is quite possible to detach the loose epidermic scales, as well as to thoroughly cleanse the nails in their surrounding furrows. Schleich called attention to the fact that brushes are hard to sterilise, and that after their use many germs, epithelial cells and fat may be found in them, consequently making them a good culture medium. It cannot be denied that if brushes are neglected they may become the source of considerable danger, more particularly when the surgeon confines himself to a purely mechanical disinfection. Therefore, it is absolutely essential to sterilise each brush after use, and this may be attained by boiling them for ten minutes in a 1 per cent. soda solution and afterwards preserving them in a 1 : 1000 sublimate solution. Personally, I have my brushes sterilised by steam and done up in packages of three, just as is done with the gauze sponges.

As a substitute for the brush, pumice and bran have been recommended, the latter appearing to act especially well in detaching loose epidermis. Reinicke recommends loofah sponge, which is softer than the brush and does not injure the hands. Ahlfeld uses a flannel cloth immersed in alcohol, while Mikulicz employs a piece of dry sterilised wood. I do not believe, however, that these devices can ever take the place of a good nail brush, but the use of sand or sand soap in combination with the brush is to be highly recommended. Generally speaking, mechanical cleansing can be perfectly well attained by the use of a brush, hot water and soap, but the opinion is unanimous that a perfect disinfection cannot be reached by this means alone. Its value is merely preparatory to the chemical treatment, but by its use the dead epidermic scales are softened and made to swell, so that the bacteria attached to them are more easily removed. Then, again, the fatty secretion of the skin is removed by the free use of soap, and thus allows the antiseptic solution to more readily penetrate if all traces of the soap are removed by ether and alcohol.

Even should it be admitted that sand soap or vegetable fibre soap act more energetically than either potash or soda soaps, the fact, nevertheless, still remains that the result of disinfection, when the former are used is not much better

than with the latter. On the other hand, the use of the brush has the advantage of being simpler and cheaper.

Most authorities lay stress upon the necessity of plenty of water as hot as the hands can bear, while the use of cold water is not to be recommended, because only few bacteria can be thus removed. As to the time necessary for mechanical cleansing, opinions vary considerably. As far back as 1885, Kümmell thought five minutes was necessary, Ahlfeld required from three to five minutes, Fürbringer only one minute, while Zweifel believed that eight minutes were required. In point of fact the duration should vary according to the condition of the surgeon's hands. With a skin which is smooth and readily disinfected, and especially when one observes strict subjective prophylaxis, eight or ten minutes will be enough.

Now, since it has been ascertained that mechanical cleansing for fifteen minutes is not sufficient to render the hands germ free, chemical treatment should not be omitted, and, although by its use an absolutely sterile condition can never be obtained, it fulfils the indications as far as all practical purposes are concerned. Great stress has always been placed upon the necessity of care and thoroughness in carrying out the mechanical cleansing. An excellent test as to the sufficiency reached is to be found in the method introduced by Delaieff in 1886. For this purpose he stains the skin with some indifferent reagent, which is insoluble both in water and fat, and can be removed only by mechanical cleansing. One will often find the colouring matter in the folds of the skin after thorough mechanical cleansing, thus demonstrating the points where it has been insufficient. Delaieff recommends for this test to rub the hands with the so-called aqua marina colour, made up in vaseline ointment in the proportion of 1 : 5 to 1 : 8. He calls attention to the difference in the amount of activity which different persons have to employ in scrubbing, all depending on the greater or less degree of roughness of the hands, in order to remove the blue stain.

Haegler, following out the above idea, rubs Chinese colouring matter, drop by drop, into the skin, and after drying

mechanical cleansing is begun. Among the places which are the least accessible to the cleansing process are the spaces beneath the nails, the free extremity of the nail when it is irregular or rough, the palm of the hand, especially where the thumb and little finger join, the spaces between the fingers, the hair follicles, and above all the small accidental crevices and minute abrasions in the skin.

From these experiments it may be inferred, with some degree of certainty, that it is impossible to disinfect the hands mechanically in less than fifteen minutes, and for this reason some chemical antiseptic must be resorted to. The oldest chemical used for this purpose is a 2 per cent. to a 5 per cent. carbolic acid solution. Kümmell thinks highly of it, and believes that a 5 per cent. solution will, to a certain degree, disinfect septic hands. A 3 per cent. solution is recommended by Fürbringer after alcohol has been used, while Mikulicz uses it in conjunction with a sublimate solution. Reinicke carefully tested its action in comparison with other phenols, such as lysol and trikresol, and reached unsatisfactory results with these products. When its use is prolonged it gives rise to obstinate eczema of the hands and erosion of the skin, as well as paræsthesia, so that owing to these unfavourable actions the phenol products cannot be employed satisfactorily. Their supposed bactericidal power is probably due to their albumen-precipitating property.

According to the experiments of Krönig and Paul, its bactericidal action decreases in a watery solution when ethyl-alcohol is added, so that it is of no practical value. Consequently, the use of a carbolic acid solution, followed by disinfection with alcohol as recommended by Fürbringer, is devoid of value.

After Koch experimentally demonstrated the superiority of sublimate over carbolic acid, many enthusiastic followers were found. It was used and recommended at the strength of 2 : 1000, or even as weak as 0.2 : 1000. Krönig and Blumberg experimented with mercury citrate, in and without combination with ethylene-diamin, and demonstrated a decided bactericidal action.

The bactericidal action of the preparations of mercury is based upon their albumen-precipitating power, the sublimate making a chemical combination with tissue albumen, so that an albuminate of mercury is formed. This combination does not become split up by substances coming in contact with the skin, such as water, alcohol and ether, so that the mercurial deposit can be removed only by desquamation of the epidermis. It was also shown that by the formation of mercury albuminate a solution of 1 : 5000 sublimate, which kills anthrax spores, has no bactericidal influence in albuminous fluids.

Mikulicz showed, however, that the addition of sublimate to albuminous fluids will prevent putrefaction when employed at the strength of from 1 : 400 to 1 : 500, while Geppert demonstrated that after twenty-four hours' action of sublimate on a watery emulsion of spores many still remained that were virulent. All this goes to show that its action upon the skin is of comparatively little value.

As soon as the epidermis is brought in contact with the sublimate solution a deposit of mercury albuminate is immediately formed in the upper layers of the skin, accompanied by destruction of the bacteria therein contained. Any further deep penetrating action of the sublimate is prevented, and bacteria seated in the deeper layers are to a certain extent cut off from the surface by a firm protective covering. The same applies to the organisms developing in the hair follicles and gland ducts. Should desquamation occur at the same point they can then come to the surface and infect the field of operation. It also interferes with the sublimate solution clinging to the skin and penetrating between the cells which have not entered into combination with tissue albumen.

Geppert called attention to the fact that in bacteriological examination of the hands, after disinfection, the surplus sublimate solution is carried over the culture media, and that the negative results obtained by these experiments should not be attributed to the favourable action of the disinfectant, but to the bactericidal action of the sublimate solution which is carried over the media, and consequently it has not been proven whether or not the virulent bacteria of the hands can

be removed and transferred when the culture has been prevented on account of the surplus solution inoculated upon the media. He therefore suggests that in inoculation experiments the coating be first precipitated with an ammonium sulphate solution, which forms mercury sulphate. But even after this he was able to grow numerous cultures after a fifteen minutes' application of a 1 : 1000 sublimate solution, whereas without the addition of the ammonium sulphate no cultures could be grown. It is probable that to this error is due the large majority of favourable results obtained in earlier times, as, for example, those published by Fürbringer and Forster.

After disinfection with sublimate and treatment with ammonium sulphate the hands are discoloured a brownish black, which is localised in the depths of the fissures and crevices, and confines itself to the superficial layers of the epidermis. This reaction may be obtained several days after disinfection with sublimate. For example, Opitz, after wearing a sublimate poultice for ten days on account of a septic hand, obtained a black discoloration with ammonium sulphate four days after the poultice had been removed. That the results of experiments have become decidedly poorer on account of precipitation of the sublimate has been proved by Gottstein and Blumberg, who were able to obtain sterilisation in 75 per cent. of their experiments after sublimate disinfection, but which was reduced to 56 per cent. after precipitation with ammonium sulphate. In order to make a correct comparison with the various methods of hand disinfection, it of necessity follows that the experiments must be carried out under the same conditions. If in sublimate disinfection precipitation of the salt is considered necessary, this elimination must also be carried out in similar experiments. This has been undertaken in the case of the phenols, alcohol, and chlorinated water, by washing with water. It has been shown that by this means the phenols are not completely removed, because when carbolic acid is used its odour still remains after the action of chlorinated water. Haegler has shown that the phenol remains on the hands after they have been treated for five minutes in a 2 per cent. carbolic

solution and washed for ten minutes in water, for a red coloration can be made evident when they are rubbed with diluted caustic soda by the application of diazobenzol sulphuric acid.

Alcohol clings to the hands so tightly after a five minutes' application that it cannot be completely removed by soaking the hands for five minutes in water. Now, since the above mentioned antiseptic acts only with great difficulty, it appears necessary to consider sublimate, when unprecipitated, in judging the value of the experiments. If this is done we come nearer to actual practice, because in practical disinfection the antiseptic is rarely removed by drying, much less so by chemical precipitation.

If one considers the bacteriological results reached in the various methods it must be recognised that sublimate disinfection is of the greatest value, no matter what may have been said to the contrary. This can be accomplished only by very careful and active mechanical cleansing in the first place, the reasons for which have already been pointed out. But since scrubbing with soap and water does not always succeed in dissolving the fat, when a fat-dissolving material is used between the mechanical and chemical disinfection, better results have been obtained by other means. Fürbringer deserves the great merit of having first suggested alcohol as a valuable agent for this purpose, and from the results obtained disinfection has been rendered much safer and easier. When first recommending alcohol he did not believe that it possessed any bactericidal power, because Koch had previously shown that anthrax spores were not destroyed after contact for 110 days with either absolute or dilute alcohol, and also that disinfecting materials—as, for example, carbolic acid—lose their activity in alcoholic solution. On account of the histological make-up of the skin Fürbringer found that it was a decided obstacle for any actual contact taking place with the antiseptic, but by introducing alcohol he hoped to obtain an adhesion between the epidermis and the antiseptic solution, which is so absolutely necessary for proper disinfection of the hands.

(To be concluded.)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

YEAR BOOKS FOR 1909.

1. *An Almanack for the Year of Our Lord 1909.* By JOSEPH WHITAKER, F.S.A. London : 12 Warwick Lane, Paternoster Row. 1909. Cr. 8vo. Pp. 1045.

2. *Whitaker's Peerage, Baronetage, Knightage, and Companionage for the Year 1909.* London : 12 Warwick Lane, Paternoster Row. 1909. Cr. 8vo. Pp. xvi + 859.

1. WE welcome the forty-first annual issue of Whitaker's Almanack, which resembles its predecessors in its main features. Among the new articles we find, at pages 675 to 678, an analysis of the Army Estimates for 1908–1909; aërial navigation and its future, with a retrospect of the principal events in 1907–1908, by Captain H. J. Coningham (pages 684 and 685); an account of the International Radiotelegraphic Convention, which took effect on July 1, 1908, and which has for its object the administration of radio (wireless) telegraphy between ship and shore (pages 686 and 687); the new Patent Law, by Messrs. Stanley, Popplewell, & Co. (pages 688 and 689); and the old age pension regulations, by Mr. Wm. A. Casson (pages 690 and 691).

The names of the successful competitiors at the Olympic Games of 1908 are duly chronicled in the usual article on "Retrospect of Sport" (page 702). Under the heading "Motor Cars and Motor Marks," a full account of automobilism in 1907–1908 is given at pages 724 to 727, inclusive.

Many additions have been made to the statistical tables with which the almanack abounds, and no effort has been spared to render the work a vade-mecum of useful knowledge. There is, however, one remarkable omission. In the list of Universities the Queen's University, Belfast, and the National University of Ireland, created by the Irish Universities Act

of 1908, mentioned at page 159 of the Almanack, find no place. The three University Colleges of Dublin, Cork, and Galway appear under their former names as Catholic University of Ireland; Queen's College, Cork; and Queen's College, Galway.

2. "WHITAKER'S PEERAGE" has this year assumed quite stately proportions, and appears with a very handsome and artistic cover. Its pages are most interesting reading. We agree with the Editor that "the shower of new Honours continues to be profuse"—a fact which is all the more remarkable during the sway of a democratic Government, with socialistic leanings. The Editor points out that "the number of Peers remains fairly stationary, but in some of the other ranks the growth is enormous." Whether such a state of things is conducive to the welfare of the Commonwealth is open to serious question. The November, 1908, creations are included in the present issue.

There is much of romance in the pages of this entertaining book—take, for example, the resuscitation of the dormant baronetcy of Makgill and the extraordinary history of the Mansel baronetcy detailed at page 500.

A System of Medicine by Many Writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P., Senior Physician to St. George's Hospital, Physician to the Victoria Hospital for Children, sometime Fellow of St. John's College, Cambridge. Vol. IV. Part I. 8vo. Pp. xvi + 764. Part II. 8vo. Pp. xix + 566. London: Macmillan & Co. 1908.

THE fourth volume of the original *System of Medicine* has been divided into two parts or—more strictly—volumes. Part I. contains the Diseases of the Liver, Pancreas, Ductless Glands, and Kidneys. Part II. includes sections on Diseases of the Nose, Pharynx and Larynx, and on Diseases of the Ear; this last section is entirely new, and has been added

under the supervision of Dr. P. M'Bride, who himself contributes an article on affections of the labyrinth.

Part I. opens with two articles by Dr. Arthur Keith—one on the anatomy of the liver, the second on hepatoptosis, the term introduced by Glénard, of Vichy, in 1892, to designate prolapse of the liver or depression of the lower border of the organ. There is a very interesting account, by Dr. William Hunter, of delayed chloroform poisoning—a form of acid intoxication to which attention was first directed in 1894 by Dr. Leonard Guthrie in a report of nine cases in which death occurred within from ten hours to six days of operations performed under chloroform. A new article on Biliary Cirrhosis has been contributed by Dr. Morley Fletcher. New articles on Diseases of the Pancreas have been written by Dr. Bosanquet and Dr. Newton Pitt. The Section on Diseases of the Ductless Glands has been enlarged by special descriptions of Infantilism by Dr. John Thomson, Obesity and Adiposa Dolorosa by Sir Dyce Duckworth, and Œdema, by Professor W. D. Halliburton. To this section also Professor George R. Murray contributes an entirely new account of Myxœdema, while Acromegaly is described by Professor E. F. Trevelyan, who observes (page 391): "The frequency with which the thyroid gland is affected in acromegaly, taken in conjunction with the enlargement of the hypophysis [cerebri] noted in myxœdema and after experimental thyroidectomy, has led observers to believe that some interference with the normal interaction of these glands is responsible for acromegaly." Hence the place assigned to acromegaly amongst "diseases of the ductless glands." In the same connection we find a brief but clear account of the Status Lymphaticus, so called by Arnold Paltauf in 1889, written by Dr. John Thomson.

In a highly technical article on "Œdema" Professor W. D. Halliburton discusses the physiology of lymph-formation and absorption, the general pathology of œdema-formation, the chemical characters of the principal kinds of dropsical fluids, and the cytology of effusions.

The volume concludes with several articles on Diseases of the Kidney. Of these the second in order and the first in importance is from the pen of Professor J. Rose Bradford on "Nephritis," who also writes on the general pathology of the

renal organs. We accept without reservation the author's classification of organic diseases of the kidney associated with albuminuria under the heads of nephritis, fibrosis, and amyloid disease. The article is in all respects an admirable exposition of the most modern views on renal degenerations. Professor Alexander Macalister has a scholarly article on "Nephroptosis," the new name for our old friend movable or floating kidney. Under the comprehensive title "Other Diseases of the Kidney," Mr. Henry Morris, President of the Royal College of Surgeons in England, gives a full account of abnormalities of that organ, clinical examination of the kidney, aneurysms of the renal artery, perinephric extravasations, perinephritis and perinephric abscess, traumatic nephritis, suppurative nephritis, pyelitis, pyelonephritis, abscess of the kidney, renal fistulas, urinary fever, renal distension, or nephrectasis, tuberculosis and actinomycosis of the kidney, syphilitic affections of the organ, renal calculus, calculous anuria, new growths of the renal parenchyma, and the diagnosis of renal from other tumours.

The volume concludes with an account, by Mr. Morris, of malformations and diseases of the ureter.

The second part of Volume IV. is to a considerable extent surgical, since it contains, at the instance of Sir Felix Semon, a section devoted to Diseases of the Ear. This addition has been made under the supervision of Dr. P. M'Bride, Consulting Surgeon to the Ear and Throat Department of the Royal Infirmary, Edinburgh. The sections on Diseases of the Nose, Pharynx, and Larynx have been much extended, and entirely new articles on Direct Laryngoscopy, Tracheoscopy, Œsophagoscopy, and Gastroscopy by Mr. Ernest Waggett, Surgeon to the Throat and Ear Department of Charing Cross Hospital, have been added. Sir Felix Semon and Dr. Watson Williams also contribute a new article on Diseases of the Trachea (pages 328 to 350, inclusive).

The illustrations are a notable feature in this part of Volume IV. There are fourteen coloured plates—all highly artistic—and sixty-one plain figures in the text. Facing page 297 is a new plate showing Koplik's or Filatow's spots—the pre-exanthematic sign of measles. It is quite refreshing to meet with any other illustration of these much-talked-

about spots than the original drawing by Koplik, which has done duty in so many text-books and monographs since Dr. Koplik described them in 1897. The plates illustrating the normal and diseased tympanic membrane are beautiful works of art. Especially fine also is the first plate showing trans-illumination of the antrum of Highmore carried out in a darkened room by placing a 10-volt electric lamp in the patient's mouth, and then comparing the degree of illumination of the two sides of the face, particularly the upper regions of the cheeks immediately below the eyelids. If antral empyema is present, the affected side will be dark, or relatively darker than the healthy side. The same effect may, however, be caused by a deviated septum, excessive thickness of the antral wall, or a malignant growth within the antrum. For this excellent figure Mr. Herbert Tilley expresses his indebtedness to his friend, Dr. C. G. Coakley, of New York.

From the above analysis of the contents of the new Volume IV. our readers will gather some idea of its great value.

RECENT WORKS ON GYNÆCOLOGY AND OBSTETRICS.

1. *Operative Midwifery.* By J. H. Munro Kerr, M.B., C.M.; Fellow of the Faculty of Physicians and Surgeons; Obstetric Physician, Glasgow Maternity Hospital; President of the Glasgow Obstetrical and Gynæcological Society. With 294 illustrations in the text, 681 pages, and a short appendix on Measurement of Pelvic Diameters by the Röntgen Rays. London: Baillière, Tindall & Cox. 1908. 8vo.

2. *Gynæcology and Abdominal Surgery.* Edited by Howard A. Kelly, F.R.C.S., Professor of Gynæcological Surgery at the Johns Hopkins Hospital, Baltimore; and Charles P. Noble, M.D., Clinical Professor of Gynæcology at the Women's Medical College, Philadelphia, &c. Illustrated by Hermann Becker, Max Brödel and others. Vol. II. With 871 illustrations. Philadelphia and London: W. B. Saunders Company. 1908. Pp. vi + 862.

1. British obstetricians, as a body, will extend a warm welcome to Dr. Munro Kerr's work on operative midwifery.

It is a book which seems to us to be a very worthy successor to Robert Barnes's work on the same subject, and we have no doubt that it will meet with as extensive and as warm a reception. It is a more comprehensive book than its title would lead one to expect, in that, in addition to a series of chapters on operative midwifery, it also contains chapters on abortion, uterine hæmorrhages, and on accidents to the mother and child. For this reason we think that perhaps Dr. Kerr might have followed Barnes in adopting a sub-title to convey that the book forms a "guide to the management of difficult labour."

The book may roughly be divided into five parts. The first deals with dystocia the result of faults in the forces of labour; the second with dystocia the result of abnormalities affecting the fœtus; the third with dystocia the result of abnormalities affecting the parturient canal; the fourth with obstetric operations; and the fifth with uterine hæmorrhages and various accidents to the mother and the child. The arrangement is probably as good as could be got, but it is not quite satisfactory. Why, for instance, is not placenta prævia treated under the head of dystocia due to abnormalities of the parturient canal?

It is most interesting to look through Dr. Kerr's work for his opinions on various vexed questions. He considers that the routine practice of correcting face presentations is uncalled for. He favours the application of forceps to the after-coming head. He does not approve of either the Prague or Martin's method of extracting it. He has an illustration of the application of forceps to the impacted breech, but he fully explains the dangers of the operation. He still "practises and teaches that in carefully selected cases of contracted pelvis forceps may be applied with most satisfactory results, even though the greatest circumference of the head has not passed the brim; but the head must be fixed, and there must not be any appreciable overlapping at the brim, nor must the presentation be a posterior parietal one." Dr. Kerr's whole attitude on this important subject is excellent.

We do not approve, however, Dr. Kerr's references to "abdominal fixation" as a cause of dystocia. In the first place, we think he should draw a clearer distinction between

fixation and suspension. Herman's operation, which he describes, seems to us to be based on wrong principles, both from the point of view of curing a backward displacement and of preventing dystocia. Dr. Kerr's own procedure is a little better, but it is unwise in the case of women who can become pregnant. Dr. Giles's procedure is indeed "more simple," but it is neither sufficiently radical for cases in which a fixation is permissible, nor sufficiently plastic for cases in which only a suspension may be done. There are plenty of suitable ways of performing the operation, and we are disappointed that Dr. Kerr has not noticed any of them.

The chapters on obstetrical operations are excellent. Perhaps a little too much space has been devoted to symphysiotomy, but this is a fault on the right side. The modern tendency is undoubtedly to replace this operation by pubiotomy, but Dr. Kerr is not as yet convinced that pubiotomy is a better operation. It must, however, be a simpler one, as he finds it possible to give an intelligible description of it in so short a space.

Dr. Kerr's attitude on the subject of rubber gloves is not so wise as on most other matters. We do not think it is right to tell the general practitioner that it is hardly practical for him to use these gloves in all obstetrical work. Dr. Kerr has, the moment before, told us that the busy practitioner is apt to scamp the exhaustive cleansing of the hands, and therefore he should have been more definite in his directions as to the necessity of the use of gloves.

The concluding chapters are all good, especially the chapter dealing with rupture of the uterus.

The book is very well illustrated. The majority of the illustrations are original, and those which are taken from other sources have been judiciously chosen. In one particular Dr. Kerr should make his artist more careful—that is, in drawing the bony relations of the sacrum and symphysis as shown in sagittal sections of the pelvis. Fig. 116 is a particularly obvious instance of this fault, and here the relations are so incorrect as to give a ludicrous effect to the drawing. Fig. 42 is a less marked instance of the same mistake. Such relations do not look well when compared with those in many of the other drawings throughout the book.

We notice a few names of authors wrongly spelt:—Moor Madden (More Madden), Hofmeir (Hofmeier), Calclough (Colclough), Reinstater (Rheinstadter), M'Lintock (M'Clintock), Convelaire (Couvelaire). These are, however, for the most part printer's errors which will disappear in future editions.

2. The second part of this fine work is quite equal to supporting and increasing the reputation of the first part. It is made up of a number of chapters written by different contributors, all of whom, with a single exception, are American, the exception being Mr. Moynihan, who contributes an article on "Operations on the Stomach."

The greater part of the present volume may be said to be devoted to abdominal surgery as distinct from gynæcological surgery pure and simple. The first four chapters are purely gynæcological, and deal with Cæsarean section, operations during pregnancy, the operative treatment of sepsis in the child-bearing period, and extra-uterine pregnancy. The next chapter may be said to be on the border line between gynæcological and general surgery, and deals with diseases of the female breast. The remaining chapters deal with abdominal surgery solely. Amongst the contributors we notice B. C. Hirst, who writes on the operative treatment of sepsis; Whitridge Williams, who writes on extra-uterine pregnancy; J. B. Murphy, who writes on intestinal surgery; Howard Kelly, who writes on diseases of the vermiform appendix, on operations on the spleen, and on the surgery of the ureter; and Charles Noble, who writes on the surgery of the kidney.

It is impossible to review this book in the full manner it deserves owing to its large size, and therefore we must confine ourselves to general impressions. Whitridge Williams's chapter on extra-uterine pregnancy is particularly good. Bloodgood's chapter on diseases of the breast is a complete monograph on the subject, and is most profusely illustrated. There is an excellent description of Halsted's operation. Moynihan's chapter on operations on the stomach is clearly written and well illustrated. J. B. Murphy's chapter on intestinal surgery is one of the best in the book, and contains a very large number of illustrations. Murphy's method of

"proctoclysis" in the treatment of collapse and sepsis is clearly described. Kelly and Huron's article on diseases of the appendix is in the main, we fancy, based on their monograph on the same subject. Opie and Watts' article on the surgery of the pancreas contains much that is new. There is an excellent article on hernia by Hunter. There are many other chapters of interest and value to which we have not specifically referred, but which are none the less valuable contributions to the literature of the subject. We can strongly recommend the work to surgeons and gynæcologists as forming one of the most up-to-date text-books on abdominal surgery and gynæcology.

Diseases of the Eye. By M. Stephen Mayou, F.R.C.S. With 119 Original Illustrations and Eight Coloured Plates. Oxford Medical Publications. London: Henry Frowde, Oxford University Press; Hodder & Stoughton. 1908.

The author in his preface states that "the book is written with the object of presenting to students who are beginning the subject and to practitioners a short, practical manual of diseases of the eye." In such a book there is always the great difficulty of knowing what to put in and what to omit, and ambiguity and inefficiency are the usual result. It is a common experience that very short books are often very hard books to understand or remember. In the chapter on "Elementary Optics and Refraction" the author exhibits the ill results of brevity to an extent which would surely puzzle a beginner. On page 29 he says cylinders "only refract in one plane *i.e.*, at right angles to their axis," which, of course, is not accurate. Again, page 35, he says "Retinal images must be of a certain size before they can be appreciated as separate objects." This is not so. What he means to say is that two or more objects, in order to be distinguished as separate objects, must form their images on the retina not less than a certain definite distance apart. The size of the retinal image is not the important thing, but the interval between the two images.

His English is not always above suspicion, as on page 36, where he says, "Loss of power of accommodation takes place regularly throughout life, and practically ceases to exist after the age of sixty." We do not think Fig. 17 (page 38) will greatly assist any aspiring retinoscopist. The practical chapters are, however, very different, and are much more satisfactory in every way, though he says (page 66) that the bulbar conjunctiva "is attached at the corneal margin." These and such like defects are trifling and can easily be corrected in a fresh edition. The volume on the whole very satisfactorily fulfils the object which its author sets before him, and the illustrations are for the most part quite good.

The Bacteriology of the Eye. By DR. THEODOR ARENFELD, Professor of Ophthalmology in the University of Freiburg. Translated by ANGUS MACNAB, F.R.C.S. Pp. xv + 402, and 87 Illustrations, mostly coloured, and Three Coloured Plates. Large 8vo. London: Baillière, Tindall & Cox. 1908.

THIS most valuable addition to ophthalmological literature in some degree marks an epoch in the terminology of the superficial diseases of the eye and its appendages. The nomenclature of the varieties of conjunctivitis and of corneal ulcers is sadly in want of revision, and of late years the tendency to classify them from a bacteriological rather than from a clinical standpoint has been on the increase. The volume before us will do much to make this most desirable reform possible.

The German edition *Die Bakteriologie in der Augenheilkunde*—of which this present volume is a translation, was published in 1907, but Dr. MacNab has brought the work well up to date both in the subject-matter of the text and in the references (which are very numerous).

In ophthalmological literature there was, till now, no satisfactory book through which the ophthalmic surgeon could post himself up in the bacteriology of the eye in all its practical clinical aspects, and learn fully to appreciate its value in differential diagnosis.

A chapter is devoted to "Remarks on Technique," another to "The Normal Conjunctiva," then come chapters on "The Lids," "Wound Infection," "Conjunctivitis," "The Special Forms of [Conjunctival Infection," "The Lachrymal Apparatus," "The Cornea," "Leprosy, Tuberculosis, and Syphilis of the Eyes," "Endogenous Infections," and "The Orbit."

The translation is admirable in that, while adhering closely to the original German, the translator has never forgotten that he is writing English. The get-up of the volume is all that can be desired, and there is an excellent index, which, however, requires to be here and there amended in any subsequent edition.

We have nothing but grateful thanks to Dr. MacNab for placing so valuable an addition to ophthalmology within the reach of all English-reading surgeons. For the better avoidance of confusion the translator has adopted the nomenclature authorised by the Royal College of Physicians, London, and where that standard failed—for example, in the name of an organism—the name used by the first writer on the subject has been used in all cases where that could be determined.

Cataract Extraction. By Lt.-Col. H. Herbert, I.M.S., F.R.C.S. Demy 8vo. 97 Illustrations. London: Baillière, Tindall & Cox. Pp. 391. 1908.

It is not often that we have had the pleasure of reading a more attractive, comprehensive, and admirable treatise on any surgical subject. The author tells us that the present work has, in a sense, grown out of an earlier publication "The Practical Details of Cataract Extraction" of which two editions were published in 1903. The present handsome volume is, however, practically a new work, and is well up to date in every detail.

Colonel Herbert has, for a good many years, enjoyed the unique opportunities of operative experience afforded by the Sir Cowasjee Jehanghir Ophthalmic Hospital in Bombay, and being not only a skilful surgeon, but also an intelligent and industrious observer, he has accumulated

an amount of practical clinical experience in all the details of, and appertaining to, the operation for cataract.

The volume embodies the experience of about five thousand extractions; it is written in a lucid and easy style not always observable in medical literature. It deals in a special and exhaustive manner with every stage in the preparation of the patient and of the instruments, and with every step of the operation, omitting nothing, and yet never becoming tedious.

The subject is treated of under six heads—(1) "Operable Cataract," (2) "Description of the Operation," (3) "Expulsive Hæmorrhage and Vitreous Accidents," (4) "Variations in Procedure and their Value," (5) "After-complications," (6) "Complicated and Soft Cataracts."

Most of the pictures illustrative of the methods of operating are from photographs taken while the operation is in progress, and serve to explain the position of the patient's eye and the surgeon's hands.

It would be quite impossible in a review of this kind to give even a brief *résumé* of the author's ideas on the various debatable points. He is in favour of the "combined extraction" and a conjunctival flap, and of irrigation of the anterior chamber and of evacuation of the contents of the Meibomian glands before operation; but he does not favour Smith's intra-capsular extraction.

The book is a delightful one to read, because one feels that the author is stating his genuine personal experiences, and that they are the matured experiences of an honest observer of facts as he found them, not of theories or hearsay.

Diseases of the Heart. By JAMES MACKENZIE, M.D., M.R.C.P. London: Henry Frowde; Hodder & Stoughton. 1908.

WE have read this volume, which constitutes one of the Oxford Medical Publications, with much profit and pleasure. Like all Mackenzie's writings, it is based on personal experience and laborious investigation, and throws much light on the problems connected with cardiac disease in its many mani-

festations which daily perplex both the general practitioner and the cardiac specialist. The goal of the author's investigation in every individual case is to clearly ascertain the condition of the cardiac muscle, and the manner in which the contraction of the cardiac chambers is carried out, both as regards the actual contraction itself and the relation of the contraction of one chamber to another. In pursuing the answer to these questions the writer, of necessity, places before us, not so much the symptoms of cardiac disease as the deductions to be drawn from those symptoms, and calls to his aid in almost every instance the assistance to be gained from the study of graphic representations of the apex-beat, the radial and carotid pulses, the jugular pulse and the liver pulse. The result is the production of a book which at first sight might appear to be ultra-scientific and even beyond the range of the ordinary medical man, but which a closer study proves to be eminently practical and to deal in the only proper method with everyday work. Among a few of the points that we observed with special pleasure are to be mentioned the following :—First, that the writer does not hesitate to state clearly that there are many points in connection with the heart that he does not understand. He refuses to accept explanations which do not appear to him to be explanations, and by thus disclaiming omniscience gains the reader's confidence for those explanations of little understood phenomena which he does put forward. Secondly, the views set forth on the subject of treatment ; the writer has very little faith in the efficacy of nitrites in cases of arterio-sclerosis ; he believes in the value of the iodides, but admits his ignorance of the way in which they produce their beneficial effects ; he attributes the varying results following the use of digitalis to variations in the patients and not in the drug itself ; he strongly disbelieves in the specific efficacy of the Nauheim treatment ; and, in fact, pins his faith more to the general management of cardiac cases than to any special cure or drug. He believes that digitalis is of most value in cases where, with a comparatively healthy myocardium, the so-called nodal rhythm has been established, a view which will readily find credence as far at any rate as the condition of the cardiac muscular tissue is concerned. Thirdly, we strongly approve

of the statement that a digital examination of an artery is of far more value than an examination by any form of sphygmometer. It has recently been stated that a physician who does not use a blood-pressure apparatus, but relies for his knowledge of the blood tension on an examination by his fingers, is in a somewhat similar and equally despicable position as the man who determines the temperature of his patient by his unaided thermic sense. On our own part, after using for years several instrumental aids for determining the blood-pressure, we have come to the conclusion that the man who bases his opinion of a case, or apprises the value of his treatment by a variation of a few millimetres in the blood-pressure, presents an example of scientific folly more short-sighted than the quackery of the bone-setter.

To revert to the general subject of the book, probably the most useful portion of it is the masterly classification and analysis of the varieties of cardiac irregularity, and of the causes which produce irregularity. Here, again, the writer keeps clearly before us the importance of distinguishing the underlying causes as an aid to prognosis and treatment. A thoughtful chapter on the use of chloroform in cardiac cases, and another on cardiac disease and pregnancy, will be found useful and suggestive. The text throughout is profusely illustrated with sphygmographic and other tracings, and details of numerous illustrative clinical cases are given in the appendices.

The publishers are to be congratulated on the general get up of the book. It is well printed on good paper, is provided with a good index, and is strongly bound.

Injuries of Nerves and their Treatment. By JAMES SHERRIN, F.R.C.S. Eng.; Assistant Surgeon to the London Hospital; Surgeon to the Poplar Hospital for Accidents; late Erasmus Wilson Lecturer, Royal College of Surgeons. London: James Nisbet & Co., Ltd. 1908. Pp. 310.

THIS little volume is intended as a guide to the examination and treatment of cases of nerve injury. The author has undoubtedly accomplished the task he set himself to perform, and the profession is now in possession of a handy little

manual conspicuous for the thoroughly practical manner in which the subject is treated.

There are eighteen chapters, which take one through all the various forms of nerve injury ever likely to be encountered. Primary union with immediate restoration of function Mr. Sherrin naturally and correctly dismisses curtly in a sentence worthy of reproduction : " When every case of nerve division is tested carefully before as well as after suture, no more will be heard of primary union." The author from his personal observation of over fifty cases of primary suture says : " In none did any early return of sensibility take place. The earliest date at which the first return of sensibility to prick was noticed was five weeks, and the latest twenty-five weeks. The first stage was complete in from twenty-three to forty-six weeks. The second stage commenced in from nineteen to forty-six weeks." The two theories regarding regeneration are discussed, and the following conclusion is drawn :—" It appears that the clinical evidence, so far as it is positive, is in favour of the formation of new axis cylinders *in situ*, and that even when it is negative it discloses nothing against this theory."

The book is one which should be to the hands of every surgeon.

Mental Deficiency. By A. F. Tredgold, L.R.C.P. Lond., M.R.C.S. Eng. London : Baillière, Tindall & Cox. 1908. Demy 8vo. Pp. xvi + 391.

The author of this very useful and timely book has had peculiar opportunities for acquiring specialised knowledge of the subject with which he deals. His book is dedicated to " all those persons of sound mind who are interested in the welfare of their less fortunate fellow creatures." A philanthropic note is at once struck which shows the author's desire not alone to write a scientific treatise upon mental defect, but to enlist the sympathy of all in the work of elucidating the causation of mental deficiency and ameliorating and classifying the feeble-minded amongst us. The statistical tables as regards the distribution and relative frequency of idiocy, imbecility, and feeble-mindedness throughout the

British Isles are of great interest, and especially to those who regard statistical tables with full reverence. In the interpretation of this statistical information, then, is to be found much subject for speculative thought.

It appears that 4.03 persons per 1,000, or one person in every 248 of the population in England and Wales, were "aments" on the 1st January, 1906; 138,529 persons mentally deficient. Truly an appalling fact to realise. One can only hope to see some decided steps taken shortly upon the lines so recently laid down by the long-continued and costly Royal Commission on the feeble-minded to improve matters and inaugurate remedial or palliative legislative measures.

Dr. Tredgold points out that idiots are less numerous than imbeciles, and that the number of the feeble-minded more than doubles that of the idiots and imbeciles combined.

This is dismal reading, because one must recognise in the "feeble-minded" class, as distinct from the idiot and imbecile, the most potent of factors in the disseminating of neuorpathic taint. It is by the feeble-minded that the greatest damage to posterity will be done, and it is the feeble-minded (our unrecognised and unsupervised neurotics) who are so largely unfettered by any State control.

Full stress is laid upon the potency of heredity, and that this factor has not been as fully recognised by other writers is accounted for very sensibly by our author. He states very clearly that case-book records, upon which statistics have been founded dealing with heredity as a cause of mental defect, are unreliable. A fact only too familiar to physicians acquainted with the lying and misleading statements of persons anxious to screen their family histories from all insane blemish.

Several possible causes of mental degenerates are dealt with in a common sense and scientific manner.

Thus the statement that imbecility is frequently caused by the intoxication of the parents at the time of conception is more or less disproved by observations. Amongst Scottish fishing villages and others, indeed, this can hardly be recognised as more than a very rare factor in the production of amentia. If one considers the question, it can hardly be other than a more or less rarer attributable cause, as otherwise the race of men descended from the hard-drinking population

of the 18th century would have been almost entirely degenerate.

The rôle of syphilis, tuberculosis, and consanguinity is in each case sensibly discussed, and moderate estimates are formed as to their potency in the production of "intrinsic" or intra-uterine and "extrinsic" or extra-uterinely produced aments.

Consanguinity is not regarded as so potent a cause as was hitherto believed. If the strains be healthy, and free from neuropathic taint, the offsprings of our sanguineous marriages are apparently likely to be healthy enough, but if there be marriages of neuropathic and neurotic cousins, somewhat startling degenerates may be expected as the result of such unions.

The book is profusely illustrated, and the general types of mental degenerates are admirably portrayed by a number of excellent photographs from life. This is a distinct feature of the work, and will assist its readers in the early recognition of defect. It should prove of great use to all those engaged in the education of large numbers of the youth of the country. The work has appeared at a very opportune time, when public attention has been awakened by the report of the Royal Commission on the Feeble-minded, and should be in the hands of all thoughtful educationalists, school inspectors, and guardians of youth. The physician will find the pathological matter of mental defect very ably dealt with. The book is interesting and helpful, not alone from the individual opinions and statements by its author, but from the large amount of knowledge to be found within its pages collected from the writings and work of other observers.

The book is well printed, and the chapters devoted to "the genius of Earlswood" and other idiot savants are exceedingly instructive and well written.

An Atlas of Skiagrams Illustrating the Development of the Teeth. By Johnson Symington, M.D., F.R.S.; and J. C. Rankin, M.D., of Belfast. London: Longmans, Green & Co. 1908.

It is fitting that Belfast—last year the host of the British Dental Association—should have produced so important,

original and instructive a publication as this work will prove to dentists and students of dental anatomy and development. Its pages contain a number of life-size radiograms, showing in each the maxilla and mandible, with the contained teeth, in various stages of development from birth up to adult life. One must see to be able to appreciate the beauty, clearness and detail of these photographic reproductions, demonstrating, as they do, not only important relations of the teeth to the surrounding structures, but to one another, at very varied ages. A most interesting point—viz., the extent to which calcification has extended in the unerupted teeth at the several ages shown here—has been clearly demonstrated. Of course the fact that these radiograms are true to life—being taken, as they are, from the dissected parts direct by the X-rays—makes them very instructive indeed.

We congratulate the joint authors upon the utility and great beauty of their Atlas, likewise the publishers, upon whose taste and skill the general turn-out of this work reflects much credit. G. P. M.

Diseases of the Rectum, Anus and Sigmoid Colon. By F. SWINFORD EDWARDS, F.R.C.S.; Senior Surgeon to St. Mark's Hospital for Fistula and other Diseases of the Rectum; Surgeon to the West London Hospital; and Senior Surgeon to St. Peter's Hospital for Urinary Diseases. Being the Third Edition of "Cooper and Edwards' Diseases of the Rectum and Anus." Illustrated and Enlarged. London: J. & A. Churchill. 1908. Pp. 442.

SIXTEEN years have elapsed since the second edition of this work appeared, and during that interval all the greatest advances both in diagnosis and treatment have been achieved, consequently a revision of the work was rendered imperative unless it was decided to let it lapse into oblivion. The book has been not only revised, but in part rewritten and enlarged, and extended so as to include the sigmoid flexure. Chapter IV., on the sigmoidoscope, of course, is quite new. The chapters on malignant disease are especially good, but here, as elsewhere, the work is defective in respect to illustrations. There is not an illustration descriptive of the abdominal or combined

method of excision of the rectum, and there are but three illustrations of the sacral and two of the perineal route of excision, and these have little educational value.

Much practical information and good sound knowledge will be acquired by a careful perusal of the text. The book is well indexed and of very moderate expense.

Kinesitherapy (Massage, Passive Movements, Gymnastics). By Various Writers. Paris: J. B. Baillière et Fils, 19 Rue Hautefeuille. 1909. 8vo. Pp. 559. Illustrated.

THIS work forms one of twenty-six octavo volumes, of some 500 pages each, illustrated and in boards, which are in process of publication with the title of "Bibliothèque de Thérapeutique," under the editorship of A. Gilbert and P. Carnot, Professor and Deputy-Professor respectively of Therapeutics in the Faculty of Medicine, Paris.

The study of physical agents has, during the last few years, shown a considerable development. The various branches of physical treatment offer to the practitioner a series of new resources. In order that he may practise kinesitherapy, massage, hydrotherapy, electrotherapy, radiotherapy, &c., every physician ought to know how to apply, himself, the simple methods and to recognise the principles, the indications, and the results of the more complicated methods which at present remain, necessarily, in the hands of specialists.

Four volumes in the new Gilbert-Carnot Bibliothèque de Thérapeutique are devoted to physiotherapy. The first volume was devoted to mechanotherapy and to hydrotherapy. A second volume has just been published which deals with kinesitherapy (massage, passive movements, and gymnastics).

M. Carnot, in the first place, treats of "the scientific bases of kinesitherapy and the laws of mechanomorphosis."

Following this general introduction, massage and passive movements are studied in their general technique, then in their application to the different anatomical regions and to different diseases. As Dr. Dagron happily puts it, "Every physician carries about everywhere with him a wonderful

instrument—his hand—which he keeps merely to draw from it remarkable therapeutic results."

Gymnastics are, further, in themselves a powerful, and at the same time simple, remedial agent from which the physician does not always obtain the good that he might, because he does not thoroughly understand it. Dr. Ducroquet makes a most interesting statement concerning it. Gymnastics as an educational subject are a powerful aid in the morphological development of the organism, and place it in a state of resistance against illness. Medical and orthopædic gymnastics have as their aim not only the prevention of disease, but also the treatment of it when it has once gained a footing.

Vertebral kinesitherapy, discussed by Mme. Nageotte, who is entrusted with this sphere of work at the Children's Hospital, is also the basis of treatment of spinal curvatures. Respiratory kinesitherapy, the complement of the foregoing method, is fundamental; because to teach the way to breathe to the child whose chest is badly developed, the adult who is hereditarily predisposed to disease, the pretubercular, the emphysematous, the asthmatic, is to immensely modify their general conditions of existence; is to aid their pulmonary defences, to increase their organic combustion, and by this means to strengthen the soil and make it immune to infection.

Abdominal kinesitherapy, applied to the stomach, the intestines, the liver, &c., excites a mechanical stimulus from which these organs frequently derive benefit. It is dealt with by Dr. Cautru.

Gynæcological kinesitherapy (Dr. Bourcart) modifies the statics and the circulatory conditions of the pelvis; it sometimes produces good results in cases which one would have believed amenable to a capital operation only.

Such are the different varieties of kinesitherapy. This branch of the art of healing has the great advantage of not subjecting the organism to the entrance of any toxic substance. It renders to one who understands the application of its methods invaluable assistance, and for the same reason it ought to be familiar to every physician.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny, M.D., F.R.C.P.I.
General Secretary—James Craig, M.D., F.R.C.P.I.

SECTION OF SURGERY.

President—John Lentaigne, P.R.C.S.I.
Sectional Secretary—A. J. Blayney, F.R.C.S.I.

Friday, November 27, 1908.

The President in the Chair.

Mammary Carcinoma and its Surgical Treatment.

Mr. Edward H. Taylor read a paper on mammary carcinoma and its surgical treatment. There was no region of the body, he thought, where one had learned so much in recent years of the mode of the spread of cancer than in the breast, nor was there any region where more satisfactory results had been obtained by improved operative measures. What he had to say would have reference to the ordinary scirrhus form of the disease. Cancer first appeared as a small nodule in the breast, which gradually extended until it involved the whole of the breast and the adjacent tissues. There were also the lymphatic extensions and the extensions which took place by the blood-stream. For a long time the extension of cancer to lymphatic glands had been well known, and one instinctively examined for enlarged lymphatic glands in order to gain a correct idea of the extent of the case. The cancer might also extend along the lymphatic vessels in a way which had been described by Mr. Sampson Handley, of London, and to that gentleman he was indebted for the slides which he would show in illustration of

the spread of cancer by the lymphatics. When the cancer originated in the breast, the chief direction of lymphatic extension was to the deep portion of the breast and the fascia which covered the pectoral muscles. A section of the skin in the region of the deltoid muscle was exhibited showing the extension of the disease in the plane of the deep fascia, and upwards from this towards the surface. A highly magnified cross-section showing lymphatic vessels filled with cancer cells, but showing no alteration in the surrounding tissue, was exhibited, together with some cut in length and showing the same surrounding conditions. Slides were also shown illustrating the stages of the disease, from the distension of the lymphatics by cells in their interior, until rupture took place, and the cells extended through the wall of the lymphatic, and produced inflammatory infiltration of the tissue around the lymphatic vessel. Other slides showed extensions in various directions. A further slide illustrated the extent of the development of malignant nodules in the skin in a case in which the right breast had been removed, such extension taking place mainly in the plane of the deep fascia, from which it might further travel deeply through the rectus sheath to the peritoneum, or deeply to the bone, or superficially towards the skin. The bony extensions were of a similar nature to those of the skin, but secondary deposits in the bones were seldom found on the distal side of the knee or elbow. As to the treatment of cancer, his experience was that the cases of breast cancer usually met with were not favourable for a complete operation. He regarded as a favourable case one in which the disease was confined to the breast, and in which there was no evidence of disease of the skin or of enlarged glands. If they found enlarged glands in the axilla they might regard the case as a late one in which the disease had travelled far, and such were the majority of cases which came to the surgeon. Until they got cases in earlier stages they could not hope for ideal results in treatment. The delay was largely due to the fact that it was very difficult at an early period to say that the case was one of cancer, and the signs that they relied upon were really late signs. Another cause of delay was that patients put off seeing the doctor until the symptoms had assumed a serious aspect. They should never hesitate to make an exploration by an incision along the outer periphery of the breast, cutting out a wedge-shaped mass which included the suspected swelling. He did not

recommend cutting into the tumour to see if it was cancer. It should be cut out altogether. If the disease had involved the skin, if it was adherent to the chest wall, if the glands of the axilla were extensively enlarged, and if the glands in the supra-clavicular region were enlarged also, he did not believe there was any prospect of a permanent cure by operative measures. Slides were shown in illustration of the stages of the radical operation. In the case of limited disease the wound could be closed by suture, but in later stages a grafting or autoplastic operation might be necessary. The arm should always be left free so that the patient had a good range of mobility and could gradually get to use it. A great improvement had occurred in the operative treatment of such cases. Some operators had given thier successes as 40 per cent. or more. He was afraid he could not lay claim to such satisfactory results. He had had recurrences in patients more than three years after operation. The knowledge of the extension of breast cancer had been an extremely valuable acquisition to surgeons, and in view of what Mr. Handley had so ably described they should impress people with the importance of seeing a doctor at the earliest possible moment when any tumour appeared in the breast. If they were to get good results in the future he thought it would not be by any further extension of the operation, but by early and correct diagnosis.

Mr. William Taylor emphasised the difficulty of diagnosis, and recommended strongly that the general practitioner and the gynæcologist, who saw the case earlier than the surgeon, should be impressed with the fact that at least five out of six women with a lump in the breast were suffering from cancer. Months were sometimes lost while cancer was spreading in every direction. It had been stated that where the axilla was involved 20 per cent. only of cases could be cured ; but if the cases were got before the glands of the axilla were involved 75 per cent. were claimed to be curable. The result would, of course, depend on other factors also, such as the age of the patient. The earlier the age the more active was the growth in the breast. Recurrence had been found up to twelve years after operation.

Mr. L. G. Gunn said his own practice was to remove more skin than Mr. Taylor thought necessary. He only removed the greater pectoral if he could not clean the axilla without its removal. He had tried to trace twenty-eight cases after three years' time, but he had been disappointed with the results in

cases which he thought had done very well, and there was recurrence in many more cases than he expected. It seemed to him that the extent of the operation had comparatively little to say to the success of the operation: what was much more important was the stage at which the case was got.

The President thought it a pity that practitioners did not come to hear such a paper. Patients were allowed to lose their lives through ignorance of elementary principles of surgery on the part of those who first saw the cases and through foolish terror on the part of the patients, the greater number of whom came to the surgeon too late. They should strive to impress on educational authorities that it was more important for a girl to understand her health than to understand algebra, and one of the lessons a girl ought to be taught was the absolute necessity of attending at once to a lump that appears in the breast or anywhere else. The danger was all the greater because such a lump was nearly always painless. They did not know the laws governing the spread of cancer, and he had been particularly impressed with the danger of cutting into a cancer. For many years he had removed both pectoralis major and pectoralis minor. Recurrence was rare in the site of the operation, but frequently occurred in other parts of the body.

Mr. E. H. Taylor, in reply, said he brought forward the communication to emphasise the importance of carrying out the most complete operation, even where the disease was of quite small dimensions, and to emphasise the importance of early diagnosis.

SECTION OF MEDICINE.

President—W. G. Smith, M.D.
Sectional Secretary—F. C. Purser, M.D.

Friday, December 4, 1908.

The President in the Chair.

Lupus Mutilans.

The President showed an unusual case of lupus mutilans. He said: The case I submit to the Section of Medicine presents some unusual features which appear to me worthy of record. They are as follows:—(*a*) Two symmetrical patches of ordinary lupus on the face, one on either cheek. Nodular lupus is rarely symmetrical on the face. (*b*) Lupus on the conjunctiva of upper

and lower eyelids of both eyes. This had not spread from the adjacent skin or up the nasal duct. (*c*) Notable involvement of the soft parts of the fingers with deformity. (*d*) Remarkable changes in the bones of the digital phalanges, as shown in the excellent X-ray photographs, for which I am indebted to Dr. E. Watson.

A Nervous Case.

Dr. Kirkpatrick exhibited a case, a young man, who, five years ago, noticed his legs becoming stiff. He was treated, but without result, and three months ago he found himself unable to walk. So far as he could make out there were no weak muscles. There was a curious tremor, more or less constant, but there was no absolute rigidity of any muscle. He had a slight increase of knee-jerks: he had good muscular strength; he walked with some difficulty, and if he turned suddenly he was inclined to fall; his eyes were perfectly normal, and he spoke quite well.

Dr. Travers Smith said he had seen the case five years ago, and was rather prejudiced in favour of the opinion he had then formed. He thought the patient a case of Friedreich's ataxy.

Dr. Coleman thought the symptoms could be explained on the assumption that the condition was hysterical, as the patient had no sign of organic disease.

Dr. O'Carroll did not think the hysterical condition would stand five years, and he was inclined to suspect the case to be organic.

Dr. Kirkpatrick, in reply, said the diagnosis of the case was full of difficulty, but he was inclined to think that it was functional.

Habit Spasm.

Dr. Coleman exhibited a young girl who, two months ago, on going to drill in an institution of which she was an inmate, noticed her right arm moving. The movement had continued ever since, except when she was asleep. It was regular, and at 160 to 180 to the minute. There was some loss of power, and the movement was intensified by resistance, and overflowed slightly into the right leg. There was nothing special in her family history, but he had found that the patient had been in the habit of using a sweeping brush, and the spasm was not unlike that movement. Similar cases had been recorded in which the movement had persisted for some time, and he took it to be hysterical in origin.

Persistent Ductus Arteriosus.

Dr. Coleman exhibited a girl, aged fifteen, who had never suffered from any special symptoms except dyspnœa on the slightest exertion. She had always been fragile, but had no special sickness in reference to her heart. She was admitted to hospital a fortnight ago, complaining for the first time of pain in the region of the heart, which passed off in two or three days, leaving her as well as usual. On physical examination it was found that the impulse beat was in the mammary line in the fifth space, and somewhat diffuse, and on palpation a remarkable thrill was noticed in the second and third left intercostal spaces. Another more abrupt impulse was felt opposite the third left space at the edge of the sternum, which coincided with the second sound. There was a very remarkable thrill along the left border of the sternum, which began immediately after systole, and extended almost up to the next systole. On auscultation a very loud murmur was heard, the maximum intensity being in the second intercostal space about an inch to the left of the margin of the sternum. The time of this murmur was late systolic. It persisted for a considerable time into diastole, and was heard as a practically continuous murmur up to the next first sound. There was no cyanosis, but the state of the blood was as in congenital heart disease. Some cases identified as persistent ductus arteriosus by Dr. Gibson, of Edinburgh, were identical with the signs in the present case. The intensified pulmonary second sound heard low down was very remarkable. It was not heard during every heart beat; it was generally present, but sometimes it was absent for a few beats. There was no clubbing of the fingers.

A Case of Cretinism.

Dr. Moorhead exhibited a case of cretinism, a girl, aged seven and a half years. She had weighed four stone, and under thyroid treatment went down in about three weeks to two stone eight and three quarter pounds. The weight had been almost steady since. On diminishing the dose the child became irritable, and apparently was going back. The actual dose now being given was ten grains of thyroid extract daily. That was above the dose generally recommended, but he had found an immediate improvement in the mental symptoms on six grains a day. The actual improvement for the last three months had been remarkably slow.

The President said the condition had become extremely rare in the British Isles, and they were not very well able to fix its pathological boundaries. It was associated at one time with enormously large thyroids, and at another time with atrophied thyroids.

Dr. Coleman said he was inclined to think that sporadic cretinism was not so very uncommon, as he had seen four cases during the past twelve or fifteen years.

PROGNOSIS IN CONGENITAL HEART DISEASE.

Scientifically speaking, there are scores of different forms of congenital heart disease. Clinically speaking, on the other hand, there are only three—namely, patent septum ventriculorum, pulmonary stenosis, and patent ductus arteriosus. The first of these may occur either by itself or in association with either of the other two. It is always very hard to estimate the prognosis in a young case of congenital heart disease. In some patients it is absolutely bad, in others only fair, whilst in a few it is so good that the patient may live an ordinary life without suffering any inconvenience at all. It is to emphasise the last point that we quote the following case of patent septum ventriculorum in a woman of fifty-five :—She had been married and had borne three children, all of whom she had suckled. Her pregnancies had been uneventful. Indeed, after the illnesses of childhood were past the patient had not been ill at all until she was fifty-five. There was a very loud bruit, typical of patent septum ventriculorum, systolic in time, superficial, best heard at the inner end of the third left intercostal space, and radiating thence widely over the front and back of the chest. She finally consulted a medical man for gastric symptoms, and the cardiac lesion was discovered unexpectedly in the course of the routine examination. It will be supposed that there can have been only a minute hole in the interventricular septum in this case, causing a great noise but little real disturbance of the circulation. This is very probable ; but the degree of the lesion, and hence the prognosis, could scarcely have been determined from the physical signs alone. The fact of survival is the chief evidence that the functional disturbance was slight ; the point is that survival is possible, notwithstanding the presence of well-marked physical signs of congenital heart disease.—*The Hospital*, November 21, 1908.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore.

Vital Statistics

For four weeks ending Saturday, December 26, 1908.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended December 26, 1908, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 18.3 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,131,959. The deaths registered in each of the four weeks ended Saturday, December 26, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c	Week ending				Average Rate for 4 weeks	Towns, &c	Week ending				Average Rate for 4 weeks
	Dec. 5	Dec. 12	Dec. 19	Dec. 26			Dec. 5	Dec. 12	Dec. 19	Dec. 26	
22 Town Districts	20.3	19.7	19.3	18.3	19.4	Lisburn	22.7	22.7	22.7	27.3	23.8
Armagh	20.6	27.5	6.9	20.6	18.9	Londonderry	17.0	15.8	19.5	12.2	16.1
Ballymena	4.8	4.8	14.4	23.9	12.0	Lurgan	17.7	8.9	4.4	8.9	10.0
Belfast	16.3	16.7	19.7	23.4	19.0	Newry	12.6	12.6	12.6	12.6	12.6
Clonmel	15.4	20.5	20.5	5.1	15.4	Newtownards	17.2	11.4	17.2	17.2	15.8
Cork	22.6	28.1	31.5	11.6	23.4	Portadown	10.3	31.0	36.2	10.3	21.9
Drogheda	12.3	8.2	20.4	20.4	15.3	Queenstown	19.8	13.2	13.2	13.2	14.9
Dublin (Reg. Area)	23.8	21.9	18.0	17.2	20.2	Sligo	43.2	38.4	14.4	9.6	26.4
Dundalk	8.0	8.0	12.0	4.0	8.0	Tralee	5.3	5.3	15.9	10.6	9.3
Galway	31.1	50.5	11.7	—	23.3	Waterford	21.4	23.4	13.6	17.5	19.0
Kilkenny	24.6	4.9	9.8	9.8	12.3	Wexford	23.3	32.7	32.7	4.7	23.3
Limerick	31.4	15.0	19.1	27.3	23.2						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, December 26, 1908, were equal to an annual rate of 0.7 per 1,000, the rates varying from 0.0 in seventeen of the districts to 3.6 in Londonderry—the 10 deaths from all causes registered in that district including one from enteric fever and 2 from diarrhœa. Among the 171 deaths from all causes registered in Belfast are one from scarlet fever, one from diphtheria, 2 from diarrhœal diseases and one from *cerebro-spinal meningitis*; and of the 17 deaths from all causes registered in Cork one is from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 394,525, that of the City being 303,874, Rathmines 36,087, Pembroke 28,183, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 26, 1908, amounted to 149—73 boys and 76 girls; and the deaths to 136—71 males and 65 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 18.0 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the Area, the rate was 17.2 per 1,000. During the fifty-two weeks ending with Saturday, December 26, 1908, the death-rate averaged 22.5, and was 2.5 below the mean rate for the corresponding portions of the ten years 1898–1907.

The total deaths registered (136) included 3 from measles, 2 from whooping-cough, one from diphtheria, one from enteric fever, and one from influenza. In each of the three preceding weeks, deaths from measles had been 5, 7, and 5; deaths from whooping-cough had been 2, 3, and one; deaths from diphtheria had been 0, one, and 2; deaths from enteric fever had been 3, one, and 0; and deaths from influenza had been 2, 2, and 0.

There was one death from lobar pneumonia. There were

10 deaths from broncho-pneumonia, and 5 deaths from *pneumonia* (not defined).

Twenty-five deaths from all forms of tuberculous disease were registered. This figure includes 13 deaths from tubercular phthisis (*phthisis*), 5 deaths from tubercular meningitis, 2 deaths from *tabes mesenterica*, and 5 deaths from other forms of the disease. In the three weeks preceding, deaths from all forms of tuberculous disease had been 31, 35, and 39, respectively.

One death was assigned respectively to carcinoma, to sarcoma, and to cancer (undefined).

The death of one infant prematurely born was registered.

Of 14 deaths from diseases of the brain and nervous system, 5 were from *convulsions*, all the deceased being under 5 years of age.

Diseases of the heart and blood vessels caused the deaths of 19 persons, and 25 deaths were from bronchitis.

Accidental burning was the cause of one death, regarding which an inquest was held.

In 5 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 2 infants under one year of age, and the deaths of 2 persons aged 60 years and upwards.

Forty-seven of the persons whose deaths were registered during the week were under 5 years of age (20 being infants under one year, of whom 4 were under one month old), and 42 were aged 60 years and upwards, including 23 persons aged 70 and upwards, of whom 8 were octogenarians, and 2 (females) were stated to have been aged 95 and 97 years, respectively

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr.

Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 26, 1908, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Dec. 5	-	*	*	13	-	-	11	-	4	12	10	-	*	*	-	50
	Dec. 12	-	*	*	15	-	-	8	-	3	16	11	-	*	*	-	52
	Dec. 19	-	*	*	11	-	-	12	-	3	16	7	-	*	*	-	49
	Dec. 26	-	*	*	3	-	-	6	-	3	9	5	-	*	*	-	26
Rathmines and Rathgar Urban District	Dec. 5	-	*	*	2	-	-	-	-	-	2	2	-	*	*	*	6
	Dec. 12	-	*	*	1	-	-	1	-	-	-	1	-	*	*	*	3
	Dec. 19	-	*	*	-	-	-	1	-	-	-	-	-	*	*	*	1
	Dec. 26	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
Pembroke Urban District	Dec. 5	-	1	-	-	-	-	-	-	-	1	1	-	*	1	-	4
	Dec. 12	-	-	-	-	-	-	-	-	-	1	-	-	*	-	-	1
	Dec. 19	-	1	-	1	-	-	2	-	1	1	-	-	*	-	1	7
	Dec. 26	-	1	-	-	-	-	1		-	-	-	-	*		-	2
Blackrock Urban District	Dec. 5	-	*	*	-	-	-		-	-	-		-	*	*	-	-
	Dec. 12	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Dec. 19	-	*	*	-	-		-	-	-	-	-	-	*	*	-	-
	Dec. 26	-	*	*	-	-		-	-	-		-	-	*	*	-	-
Kingstown Urban District	Dec. 5	-	*	*	3	-	-	-	-	-	-	-	-	*	*	*	3
	Dec. 12	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Dec. 19	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
	Dec. 26	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
City of Belfast	Dec. 5	-	*	*	12	1	-	5	-	2	7	5	-	*	*	2	34
	Dec. 12	-	*	*	8	-	-	6	-	2	2	9	-	*	*	-	28
	Dec. 19	-	*	*	7	-	-	5	-	-	1	2	-	*	*	1	16
	Dec. 26	-	*	*	7	-	-	2	-	1	1	3	-	*	*	1	15

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended December 26, 1908, 21 cases of measles were admitted into hospital, 15 were discharged, and 62 cases remained under treatment at its close.

Two cases of scarlet fever were admitted to hospital, 17 were discharged, and 54 cases remained under treatment at the close of the week. This number is exclusive of 20 convalescents from the disease under treatment in Beneavin, the Convalescent Home of Cork Street Fever Hospital.

There was no case of typhus under treatment in hospital during the week.

Six cases of diphtheria were admitted to hospital, 6 were discharged, there were 2 deaths, and 38 patients remained under treatment at the close of the week.

Thirteen cases of enteric fever were admitted to hospital during the week, 6 were discharged, and 74 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, 5 were discharged, there were 5 deaths, and 15 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, December 26, in 76 large English towns, including London (in which the rate was 11.3) was equal to an average annual death-rate of 12.8 per 1,000 persons living, the average rate for 8 principal towns of Scotland was 16.1 per 1,000, the rate for Glasgow being 14.8, and for Edinburgh 17.0.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended December 26, 1908. From this Report it appears that of a total of 62 cases notified, 32 were of scarlet fever, 16 of phthisis, 7 of diphtheria, 4 of erysipelas, 2 of puerperal fever, and one of enteric fever. Among the 372 cases of infectious diseases in hospital at the close of the week were 259 cases of scarlet fever, 43 of phthisis, 34 of diphtheria, 7 of erysipelas, 6 of enteric fever, 6 of whooping cough, and one of puerperal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of December, 1908

Mean Height of Barometer, - - -	29.785 inches.
Maximal Height of Barometer (1st, at 9 a.m.),	30.356 ,,
Minimal Height of Barometer (10th, at 11 p.m.),	28.698 ,,
Mean Dry-bulb Temperature, - - -	43.1°.
Mean Wet-bulb Temperature, - - -	41.5°.
Mean Dew-point Temperature, - -	39.6°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.247 inch.
Mean Humidity, - - - -	87.9 per cent.
Highest Temperature in Shade (on 21st), -	56.7°.
Lowest Temperature in Shade (on 16th), -	27.9°.
Lowest Temperature on Grass (Radiation) (16th),	26.9°.
Mean Amount of Cloud, - - -	64.9 per cent.
Rainfall (on 19 days), - - -	1.740 inches.
Greatest Daily Rainfall (on 28th), - -	.740 inch.
General Directions of Wind, - - -	S.W., S., W.

Remarks.

In its main features December of 1908 closely resembled its namesake of 1907—it was a dull, damp, mild month, save for the piercing cold of a few days following Christmas. As in 1907, the opening day of the month found an anticyclone stretching across the British Isles from Central Europe. The chill attending this system caused dense wet fogs, which in Dublin on the 1st and 2nd yielded measurable quantities of water in the rain-gauge. On the 3rd a warm S.W. wind arrived from the Atlantic, and during the following seven days a deep depression was found over Iceland, shallow V-shaped secondaries passing from time to time across the British Isles in an easterly direction. On the 10th a very rapid decrease of pressure took place in Ireland, the barometer falling at night below 28.7 inches in Dublin. No very violent gales attended this disturbance, but lightning and hail were reported from several stations. The weather remained open, with prevalent S.W. winds, until Christmas Eve, when a keen S.E. wind brought a lower temperature to Great Britain from the Continent. On Christmas Day, the barometer rose fast over Scandinavia, and a brisk fall of temperature occurred in Central Europe. Atlantic depressions at the same time stretched

across the ocean from Iceland to Ireland. Gradients for southerly and south-easterly winds became very steep in this country, with the result that a strong gale prevailed on the 28th and in the early morning hours of the 29th. The storm was accompanied by torrents of rain in some of the central counties and by a blizzard of snow and sleet in Dublin and a heavy fall of snow over Ulster. Great Britain experienced heavy snowfalls and keen frost, the thermometer falling to 9° at Oxford and Nottingham on the morning of the 30th.

In Dublin the arithmetical mean temperature (43.7°) was 1.7° above the average (42.0°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 43.1°. In the forty-four years ending with 1908, December was coldest in 1878 (M.T. = 32.8°), and in 1874 (M.T. = 36.8°); warmest in 1898 (M.T. = 47.6°), and in 1900 and 1905 (M.T. = 47.1°).

The mean height of the barometer was 29.785 inches, or 0.090 inch below the corrected average value for December—namely, 29.875 inches. The mercury rose to 30.356 inches at 9 a.m. of the 1st, and fell to 28.698 inches at 11 p.m. of the 10th. The observed range of atmospheric pressure was, therefore, 1.658 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43.1°, or 4.2° below the value for November, 1908. Using the formula *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .52), the value was 43.8°, or 1.7° above the average mean temperature for December, calculated in the same way, in the thirty-five years, 1871–1905, inclusive (42.1°). The arithmetical mean of the maximal and minimal readings was 43.7°, compared with a thirty-five years' average of 42.0°. On the 21st the thermometer in the screen rose to 56.7°—wind, S.S.W.: on the 16th the temperature fell to 27.9°—wind, S.W. The minimum on the grass was 26.9° on the 16th. There were only 2 days of frost in the screen, but 9 nights of frost on the grass were recorded.

The rainfall was 1.740 inches, distributed over 19 days. The average rainfall for December in the thirty-five years, 1871–1905, was 2.25 inches, and the average number of rainy days was 17. The rainfall, therefore, was about half an inch below, while the rain-days were slightly above the average. In 1876 the rainfall in December was very large—7.566 inches on 22 days. In 1868 (which was otherwise a fine and dry year), 4.749 inches fell on as

many as 27 days. On the other hand, in 1867, only .771 inch was measured on 13 days; in 1885, only .742 inch on 10 days; in 1892, only .795 inch on 10 days; and in 1871, only .797 inch on 15 days. In 1907, 2.149 inches of rain fell on 22 days.

High winds were noted on 11 days, and attained the force of a gale on two occasions—the 28th and 29th. The atmosphere was more or less foggy in Dublin on the 1st, 2nd, 15th, 16th, 19th, 20th, 21st, and 23rd. Hail fell on the 8th and 13th; snow and sleet on the 28th. A solar halo was seen on the 12th, and a lunar halo or corona on the 4th, 5th, 7th, 9th, and 31st. Lightning occurred on the 6th.

The rainfall in Dublin during 1908 amounted to 23.753 inches on 198 days, compared with 26.994 inches on 218 days in 1907, 22.807 inches on 203 days in 1906, 25.277 inches on 193 days in 1905, 22.180 inches on 189 days in 1904, 31.601 inches on 228 days in 1903, 29.375 inches on 203 days in 1902, 26.075 inches on 179 days in 1901, only 16.601 inches on 160 days in 1887, and a thirty-five years' (1871-1905) average of 28.00 inches on 198 days.

Mr. William J. Good reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.785 inches, the range of atmospheric pressure being from 30.350 inches at 9 a.m. of the 1st to 28.774 inches at 9 p.m. of the 10th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43.8°. The arithmetical mean of the daily maximal and minimal temperatures was 44.3°. The screened thermometer rose to 58.6° on the 21st, and fell to 27.3° on the 16th. On the 30th the grass minimum was 23.0°. Rain fell on 13 days to the amount of 1.525 inches, the greatest fall in 24 hours being .580 inch on the 28th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 21 3 hours, of which 3.4 hours occurred on the 9th. The mean daily sunshine was 0.7 hour. The mean temperature of the soil at 9 a.m. at a depth of one foot was 43.4°; at a depth of 4 feet it was 47.1°.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall in December was 3.310 inches on 19 days, compared with 2.565 inches on 20 days in 1907, 1.860 inches on 11 days in 1906, 1.405 inches on 10 days in 1905, 1.890 inches on 15 days in 1904, 2.830 inches on 18 days

in 1903, and 2.920 inches on only 11 days in 1902. Of the total amount 1.800 inches fell on the 28th.

Dr. Arthur G. Price reports a rainfall of 3.69 inches on 20 days at Clonsilla, Greystones, Co. Wicklow, the heaviest fall in 24 hours being 1.90 inches on the 28th. The mean temperature of December was 42.4°, the extremes being—highest, 52° on the 19th, 20th, and 31st; lowest, 28° on the 27th. The rainfall during 1908 at Clonsilla amounted to 31.30 inches on 183 days. The greatest daily measurement was 2.67 inches on August 20th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 3.036 inches on 18 days. The greatest fall in 24 hours was 1.15 inches on the 28th. The mean shade temperature was 39.7°, the extremes being—highest, 50.5° on the 5th; lowest, 23.5° on the 15th.

Dr. Christopher Joynt, F.R.C.P.I., recorded 1.855 inches of rain on 16 days at 21 Leeson Park, Dublin. On the 28th .860 inch was recorded. The total rainfall for the year was 24.400 inches on 199 days, compared with 23.112 inches on 198 days in 1906, and 27.365 inches on 217 days in 1907.

Mr. Robert O'Brien Furlong, C.B., reports that the rainfall at Cloneevin, Killiney, Co. Dublin, was 2.36 inches on 23 days, the maximum being .98 inch on the 28th. The average December rainfall at this station in 23 years (1885–1907) was 2.341 inches on 17.3 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 19 days to the amount of 2.71 inches, 1.34 inches being measured on the 28th. Temperature ranged from 54.0° on the 5th, 20th, and 21st to 30° on the 16th. The mean shade temperature was 43.6° Fahrenheit. The total rainfall in 1908 at Lynton was 28.85 inches on 215 days, compared with 25.61 inches on 205 days in 1906, and 28.36 inches on 219 days in 1907.

At Cork, according to Mr. W. Miller, the December rainfall was 3.80 inches on 25 days, the measurement being 0.43 inch short of the average. The greatest daily rainfall was 0.35 inch on the 27th. The year's rainfall at this station was 32.64 inches on 196 days, the total being 5.61 inches under the average, while the rain-days were one short of the average.

The Rev. Arthur Wilson, M.A., reports that rain fell on 28 days at the Rectory, Dunmanway, Co. Cork, to the large amount of 76.9 inches. The heaviest falls were .63 inch on the 12th,

.61 inch on the 22nd, and .60 inch on the 27th. The rainfall for the year was 58.07 inches. In 1905 it had been 54.72 inches on 211 days, in 1906, 50.55 inches on 228 days, and in 1907, 58.40 inches on 244 days.

The rainfall at the Ordnance Survey Office, Phœnix Park, Dublin, was 1.790 inches on 19 days, the maximum in 24 hours being .350 inch on the 22nd. The total amount of sunshine was 36.6 hours: the largest daily amount was 5.5 hours on the 6th. The thermometer fell to 24.9° in the screen on the morning of the 16th.

Rainfall in 1908.

At 40 Fitzwilliam Square, West, Dublin.

Rain Gauge :—Diameter of Funnel, 8 in. Height of top—Above ground, 1 ft. 4 in. ; above sea level, 50 ft.

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which .01 or more fell
	Inches	Depth	Date	
January,	2.055	.713	6th	16
February,	1.372	.384	14th	20
March,	2.940	.703	5th	22
April,	2.337	.914	27th	16
May,	1.374	.228	14th	21
June,	1.651	.349	16th	12
July,	2.080	.522	7th	13
August,	3.435	1.650	20th	15
September,	2.313	.458	8th	19
October,	1.219	.219	20th	13
November,	1.237	.362	13th	12
December,	1.740	.740	28th	19
Total	23.753	1.650*a*	Aug. 20th*a*	198

a Maximum.

The rainfall was 23.753 inches, or 4.247 inches less than the average annual measurement of the thirty-five years, 1871–1905, inclusive—viz., 28.000 inches.

It is to be remembered that the rainfall in 1887 was very exceptionally small—16.601 inches—the only approach to this measurement in Dublin being in 1870, when only 20.859 inches fell; in 1884, when the measurement was 20.467 inches; and in 1883, with its rainfall of 20.493 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 inches—or as nearly

as possible double the fall of 1887—fell on 220 days. In 1900 the rainfall was 34.338 inches, or 6.338 inches in excess of the average for the thirty-five years, 1871–1905. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1900—namely, in 1872, when 35.566 inches fell on 238 days, and in 1880, when 34.512 inches were measured on, however, only 188 days. In 1907 the rainfall was 26.994 inches on 218 days.

In 1908 there were 198 "rain-days" or days upon which not less than .005 inch of rain (five-thousandths of an inch) was measured. This was exactly the average number of rain-days, in the thirty-five years, 1871–1905, inclusive. In 1868 and 1887—the warm, dry years of recent times—the rain-days were only 160, and in 1870 they were only 145.

On only one occasion in 1908 did one inch of rain fall on a given day in Dublin—viz., August 20th, 1.650 inches. In 1901, the rainfall only once exceeded one inch, but on that occasion (November 11th) the measurement was 2.037 inches. In 1902, 1.342 inches fell on July 25th, and 2.075 inches on September 2nd. In 1903 the maximal daily rainfall was .966 inch on September 10th. In 1904, 1.092 inches fell on May 31st, and 1.197 inches on September 12th. The excessive rainfall on August 25th, 1905, is especially noteworthy—it amounted to 3.436 inches in Dublin (Fitzwilliam Square). It was the ninth occasion only since 1865—that is, in 42 years—upon which 2 inches have been measured in Dublin at 9 a.m. as the product of the preceding 24 hours' precipitation. The previous excessive falls were—August 13th, 1874 (2.482 inches); October 27th, 1880 (2.736 inches); May 28th, 1892, 2.056 inches; July 24th, 1896, 2.020 inches; August 5th, 1899 (2.227 inches); August 2nd, 1900 (2.135 inches); November 11th, 1901 (2.037 inches); and September 2nd, 1902 (2.075 inches). On no previous occasion within the past 43 years had 3 inches or upwards been measured.

Included in the 198 rainy days in 1908 are 16 on which snow or sleet fell, and 25 on which there was hail. In January hail was observed on one day, in February on 5 days, in March on 5 days, in April on 4 days, in May on 5 days, in June on one day, in August on one day, in November on one day, and in December on 2 days. Snow or sleet fell on 2 days in January, 4 days in February, 6 days in March, 3 days in April, and one day in December. Thunderstorms occurred on May 12 and 31, and

on July 16. Thunder was heard without visible lightning twice in July. Lightning was seen once in February, July, November and December.

The rainfall in the first six months was 11.729 inches on 107 days. In the second six months it was 12.024 inches on 91 days.

The rainfall was distributed quarterly as follows:—6.367 inches fell on 58 days in the first quarter, 5.362 inches on 49 days in the second, 7.828 inches on 47 days in the third, 4.196 inches on 44 days in the fourth quarter.

More or less fog prevailed on 33 occasions—7 in January, 6 in March, 3 in April, 1 in June, 1 in July, 4 in October, 3 in November, and 8 in December. High winds amounted to gales (force 8 or upwards, according to the Beaufort scale) on 18 occasions—4 in January, 3 in February, 6 in March, one in August, 2 in November, and 2 in December.

Solar halos were seen on 15 occasions, a lunar halo on 18 nights, a lunar corona on 8 nights. Aurora borealis was seen twice in April and once in August.

The year was remarkable for the coldness of the spring and the warmth of the autumn. Not since 1876 had such a spell of cold weather been recorded in April as that which made memorable the Easter Week of 1908. The remarkable point about this cold snap was its occurrence in one of the coldest—and most persistently cold—springs of recent times. March was unsettled, rainy, but—above all—cold: its mean temperature was only half a degree (Fahrenheit) above that of the previous January, and was actually 2.8° below that of its predecessor, February. And April was proportionately severe, while the defect in temperature in fact increased as the month advanced. On Friday, the 24th, a bitterly cold wave from the northward reached Ireland and England—snow and hail fell in large quantities, and intense night-frosts threatened the promise of spring. In Dublin the mean temperature of Friday, the 24th, was 32.9°, or 14.7° below the average, the extremes being—lowest, 25.1°; highest, 40.7°.

September was generally cool, but a remarkable spell of very unusual warmth which set in on the 27th raised the mean temperature to the average for the month.

October, 1908, will be remembered as the warmest October on record within recent times. The mean temperature (55.4°) was 5.9° above the average. On 17 days, the thermometer rose

to 60° or upwards in the screen—daily until the 15th. Once only did it fail to reach 50°—on the 24th, when the maximum was 48.4°. The mean minimum in the screen for the month was 50.6°, identical with the value for the previous month; and the mean minimum on the grass was as high as 46.5°, or actually 0.4° in excess of the figure recorded in September, 1908.

November was mild and open, ranking third in the list of warm Novembers observed within the past forty-four years; and December also was—for the most part—mild, the mean temperature being 2.3° above the average.

Mr. Robert O'Brien Furlong, M.A., C.B., reports relative to the rainfall in 1908 at Cloneevin, Killiney:—The total number of inches was 25.66 on 196 days, compared with 22.34 inches on 201 days in 1906, and 25.94 inches on 203 days in 1907.

The rainfall of 1908 is 2.013 inches below the average of 23 years (1885–1907)—viz., 27.673 inches.

The number of days on which .01 inch or upwards fell—viz., 196—is 10 in excess of the average for the same period—viz., 186 days.

The greatest amount measured in any month during 1908 was 3.67 inches on 14 days in August; the smallest, .92 inch, on 17 days in February.

The heaviest fall in 24 hours was on August 20, when 2.09 inches fell.

Abstract of Meteorological Observations taken at Dublin (40 Fitzwilliam Square, West) during the Year 1908.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rain Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevalent Winds
	°		°		°	°	"		"	"		"		
January -	55.9	16th	22.8	5th	45.9	37.1	2.055	16	30.087	30.500	20th	29.246	7th	S.W., S., W.
February -	53.2	22nd	33.0	29th	48.8	40.7	1.372	20	30.110	30.764	6th	29.210	28th	W., N.W.
March - -	57.0	8th	30.0	5th	47.8	36.1	2.940	22	29.809	30.199	14th	28.994	6th	W., W.N.W., N.W.
April - -	63.4	30th	25.1	24th	51.0	38.4	2.337	16	29.994	30.490	6th	29.312	24th	N.E., N., N.W.
May - -	68.0	17th	41.0	7th	61.7	48.7	1.374	21	29.913	30.516	27th	29.144	5th	S.W., W., E.
June - -	71.3	29th	44.6	7th	63.5	50.4	1.651	12	30.083	30.437	24th	29.441	13th	N.W., N.E.
July - -	74.7	4th	49.0	15th and 19th	67.3	54.6	2.080	13	29.987	30.465	29th	29.295	17th	N.W., S.W., W.
August -	76.3	3rd	47.2	11th	65.0	53.1	3.435	15	29.973	30.422	2nd	29.085	31st	N.W., W.
September -	74.4	30th	39.0	12th	61.3	50.6	2.313	19	29.885	30.236	5th	29.020	1st	S.W., W., N.W.
October -	68.7	2nd	38.0	26th	60.1	50.6	1.219	13	30.038	30.463	22nd	29.725	8th	S.E., S.
November -	59.6	11th	31.1	30th	52.8	43.3	1.237	12	29.978	30.403	30th	29.456	22nd	S.W., W.
December -	56.7	21st	27.9	16th	48.4	38.9	1.740	19	29.785	30.356	1st	28.698	10th	S., S.W., W.
Extremes, Totals, and Means	° 76.3	Aug. 3rd	° 22.8	Jan. 5th	° 56.1	° 45.2	" 23.753	Days 198	" 29.970	" 30.764	Febuary 6th	" 28.698	Dec. 10th	W., S.W., N.W.
					50.7°									

January 1, 1909.

JOHN WILLIAM MOORE, M.A., M.D., D.P.H., Dubl.; D.Sc. Oxon.; F.R.C.P.I.; F. R. Met. Soc.

PERISCOPE.

EPIDEMIC CEREBRO-SPINAL FEVER WITH CONJUNCTIVAL SYMPTOMS.

Dr. Hanford M'Kee had, in 1907, an opportunity of seeing six cases of epidemic meningitis with conjunctival symptoms—(1) An adult male, aged twenty-three years. Marked catarrhal conjunctivitis. Smear, negative. Culture: *Staphylococcus aureus* (in pure culture). (2) An adult male, aged eighteen years. Purulent conjunctivitis, both eyes. Smear, negative. Culture: *Meningococcus*. (3) Child, aged three years. Catarrhal conjunctivitis, both eyes. Smear, gram-negative diplococci. Culture: *Bacillus influenzæ*. (4) Child, seven years. Catarrhal conjunctivitis, both eyes. Smear, gram-negative diploccocci. Culture: *Meningococci*. (5) Child, aged seven years. Catarrhal conjunctivitis, both eyes. Smear, gram-negative diplococci and gram-negative diplobacilli. Culture: Diplobacilli and *B. xerosis*. (6) Child, aged nine years. Sister to case 5. Catarrhal conjunctivitis, both eyes. Smear, gram-positive cocci and gram-negative bacilli. Culture: *Staphyloccus albus* and *Bacillus influenzæ*. In each case the diagnosis was made by cultural tests.—*The Montreal Medical Journal*, December, 1908.

METASTATIC OPHTHALMIA IN EPIDEMIC CEREBRO-SPINAL FEVER.

This is not a rare condition. Many of the cases are mild and undoubtedly have in the past been often everlooked. Many of them have been discovered only at autopsy. The percentage of cases of meningitis complicated by metastatic ophthalmia is given by Knapp as 4 to 5 per cent., by Heine as 5 per cent., and by Uhthoff as 4 per cent. The affection occurs as a rule in one eye, but has been reported in both by Knapp in one of ten cases, by Kreitmaier in one of twelve cases, by Seggel in one of four, by Uhthoff in two of eleven, by Heine in two of five, by Markuse in one case, and by von Graefe in three cases. The clinical picture is a characteristic one, and has been well recognised for years. Early in the course of the disease, generally between the first and third weeks, there suddenly appears a hypopyon iritis with exudation in the pupillary area. This condition very quickly assumes the well-known picture of pseudo-glioma. Often the characteristic yellowish appearance in the pupillary area is the first symptom pointing to any ocular complication. Dr. Hanford M'Kee had in 1907, at the Montreal General Hospital,

an example of metastatic ophthalmia occurring in a case of epidemic cerebro-spinal meningitis. The case was as follows :— Child. W. J. A., aged seven years, was seized, June 9, 1907, with vomiting of blood-stained fluid. A few hours later he complained of pain at the back of his neck and frontal headache. He was admitted to the hospital at noon of the same day, and became unconscious a short time after admission. When admitted he had in each eye bright sub-conjunctival hæmorrhages, and during the next day there developed a hypopyon in the right eye. The patient died June 11th. The diagnosis was epidemic cerebro-spinal meningitis. At the *post-mortem* the right cornea was seared with a hot surface. With a sterile hypodermic syringe the pus was withdrawn from the anterior chamber, and was planted on hæmoglobin agar by carefully spreading the material over the surface of the medium. After twenty-four hours at 37° C., the growth was so thick that isolated colonies could not develop. The micro-organism was a gram-negative diplococcus which coincided in every particular with the gram-negative diplococcus isolated from the cerebro-spinal fluid—*i.e.*, meningococcus.—*The Montreal Medical Journal*, December, 1908.

CULTIVATION OF THE MENINGOCOCCUS FROM A NORMAL EYE.

The first report of meningococcus from the conjunctival sac of a patient not ill with meningitis was from Axenfeld's clinic by Brons. The case was one of Keratomalacia from pneumococcus infection. From the conjunctiva for a period of two weeks were isolated meningococci. The third case of meningococcus from the conjunctival sac which Dr. Hanford M'Kee reports is the isolation from an apparently normal eye. A young Jewish boy, number 279, 1908, came to the out-door department of the Montreal General Hospital last February to have his eyes tested for glasses. As Dr. M'Kee was examining a series of normal conjunctivæ at that time, he chose his conjunctiva from which to take cultures. Tubes of hæmoglobin agar, bouillon and plain agar were inoculated. The growth on hæmoglobin agar was profuse, so much so that the reporter believed it to be *Micrococcus catarrhalis*, but in putting it through the tests given above he proved it to be the meningococcus. This Dr. M'Kee believes is the first instance reported of the cultivation of the meningococcus from a normal eye.—*The Montreal Medical Journal*, December, 1908.

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MEDICAL SCIENCE.

MARCH 1, 1909.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VII.—*Notes on a Year's Mental Hospital Work.*[a] By W. R. DAWSON, M.D., F.R.C.P.I.; Resident Medical Superintendent, Farnham House, Finglas, Co. Dublin.

THE following are a few short notes concerning some of the points which have arisen in the practice of the year ending March 31st, 1908:—

Causation.—The ætiology of mental disease is a subject which attracts ever-increasing attention, and rightly so, since in no department of Medicine is preventive treatment of more importance. I have been in the habit of classifying causes in three groups—viz., Diathesis, Moral and Physical Stress, and Intoxication—the last-mentioned including infection. Using this grouping, I find that of the admissions during the year diathesis alone was considered the principal cause in 29.4 per cent., which is rather lower than the average of other years. However, more or less hereditary taint was present in a much larger proportion of the admissions, for leaving out three cases in which no history on the point was obtained, and one in

[a] Read in the Section of Medicine, Royal Academy of Medicine in Ireland, January 15, 1909. Slightly revised.

which the question was doubtful, there was either direct or collateral neuropathic heredity in 71.4 per cent. of the remainder. As might, perhaps, have been expected, the second forms the largest class, no less than 47 per cent. of the admissions being attributed to various forms of moral and physical wear and tear as principal causes; while only 23.5 per cent. were held to be mainly due to toxic influences. Of course more than one factor was usually present, and indeed at least two cases were the result of factors belonging to all three categories.

As regards *heredity*, the form in which the diathesis showed itself in other members of the family was chiefly insanity, the characters of which bore in some instances a remarkable resemblance to those of the case admitted. In other cases it took the form of epilepsy or alcoholism. The forms of insanity in the admissions in which there was heredity were mania, melancholia, or dementia, and there were also two cases of alcoholism, one of which, at all events was not technically insane. Amongst the discharges, one case certainly possessed the neuropathic diathesis in a high degree, although no family history of neuropathic heredity could be ascertained. This patient was suffering from the form of mental disease known as paranoia, which almost invariably occurs in hereditary neuropathy, except, perhaps, in the relatively few cases due to alcohol. Most of the cases falling under the second heading—wear and tear—as regards their causation, presented no special peculiarity; but it may be recorded that one was undoubtedly due to religious excitement, inasmuch as this is not nearly so common a cause of mental disease as is generally supposed; and it is, perhaps, worth adding that the old idea of a special form of religious insanity exists only amongst the uninstructed. In this instance the patient had some neurotic heredity, and the influence of religious excitement was augmented by fatigue, want of proper food, and the heat of the weather. Another case was due to overwork for an examination, and the early symptoms were a sort of confusion

and mental dulness, somewhat similar to what had been observed in a former case arising from the same cause; and these would seem to be the characteristics of this form of brain exhaustion. A case of acute mania presented several points of interest, and may be briefly reported :—

Case I.—Gentleman, aged forty-three, with bad heredity shown both directly and collaterally. In youth he was greatly addicted to venery, but is not known to have had syphilis. He had been depressed about money matters for some months, and was inclined to be irritable. He suddenly found out that his affairs were right, and that he would eventually be fairly well off, and two days later he began to show signs of excitement, and then indulged in various foolishly extravagant outlays, and planned others. He grew restless and excited, and finally was sent to Farnham House, where he showed a grandiose state of mind, with corresponding delusions, but some of an unpleasant character. At times he was excited and dangerous. His heart was found to be tumbling and intermittent, his tongue furred and breath foul, and his urine contained both albumen and sugar, with hyaline and granular casts. He was treated mostly in bed, and in about six weeks rather suddenly began to improve, and was discharged well two months after admission, the physical signs having also disappeared, except the albuminuria.

This is a case of fairly pure acute mania such as is not nowadays very common, and the suddenness of onset and recovery are what one would look for in an unstable brain, though happily the patient has continued well since his discharge. The cause is peculiar, in that it appears to have been *relief* of anxiety; and, moreover, although thus of purely psychic origin, the physical signs were such as to suggest toxæmia, except that the temperature was not raised. The cardiac state may have been due to the sudden relaxation of the arterioles when the depression altered abruptly to exaltation; and possibly the renal complication may have been caused by vasomotor changes having a similar origin.

The *toxic* cases included one of general paralysis in a syphilitic subject, and several due to alcohol or morphin.

One of the alcoholics suffered from the delusional form of alcoholic insanity known sometimes as *alcoholic paranoia*:—

Case II.—Gentleman, aged sixty-four, who had been a good deal about the world in the exercise of his profession, and is said to have been smart and capable. He always indulged freely in alcohol, probably more so since his retirement; and about six months previous to admission he had a particularly bad drinking bout, from the effects of which he never fully recovered. After this he gradually developed delusions of suspicion, imagining that his food was drugged, and it was largely the difficulty of getting him to take sufficient nourishment that led to his being sent to Farnham House. On admission he was found to be somewhat depressed, with delusions about his food being poisoned and his tobacco drugged, and vague hallucinations about opium fumes causing a queer feeling in his head. His memory was bad for recent, excellent for more remote, events; he was perfectly coherent, answered to the point when spoken to, and talked freely of his travels. On physical examination a slight whiff was heard after the aortic second sound, the blood pressure was high, and the urine contained 2.5 per 1,000 of albumen, and also casts. As usual in delusional cases the patient did better at first, eating and sleeping well, though manifesting many delusions, all of the same type, and also hallucinations of hearing. His renal trouble became worse, however, and on one occasion he showed signs of uræmic coma which necessitated a Turkish bath. This was unfortunate, as he regarded it as a form of torture, and all his suspicions were aroused against the staff. However, the nephritis cleared away, and he became much better physically, though not mentally; and, of course, in such a case mental recovery was out of the question.

The only sign of anything approaching the "fabrication" so characteristic of some forms of alcoholic insanity lay in detailed delusional complaints of ill-usage. With this exception—which, indeed, can hardly be considered an exception—there was nothing in the case, apart from the history, which could be called pathognomonic of alcoholic insanity in a man of his age: for the retention of memory for remote events, while that for recent events is lost, is equally characteristic of senility. And

in this connection it is worth while to lay emphasis on the fact that it is often impossible to tell from the nature of the symptoms alone that alcohol has been the cause of a mental illness, once the immediate effects of alcoholic indulgence have passed off. Instances of alcoholic chronic mania, alcoholic dementia, and another case of alcoholic paranoia, treated at Farnham House within recent years, could be quoted in proof of this contention, which is further supported by the fact that cases of alcoholic nervous disease are often singularly free from serious alcoholic affection of other organs of the body.

A case of mild temporary mental weakness due to alcohol, also admitted during the year, afforded an instance of an often-felt difficulty in finding a suitable term to describe a condition which would be called dementia if it were permanent. When investigating the prisons, workhouses, and such places for the Royal Commission on the Feeble-minded,[a] I repeatedly came across cases in which a prolonged and frequently repeated debauch had left a degree of mental hebetude indistinguishable from that of permanent mental weakness, and sometimes symptoms highly suggestive of general paralysis, but which cleared up completely in a week or so; yet there is no term generally agreed on to describe such a state.

Diabetic Insanity.—A case of this rare form of mental disease, which was published some years ago,[b] recently had a recurrence of the mental trouble, but was once more discharged recovered during the year under review. Her previous admission was in 1900, when she was suffering from symptoms practically identical with those of her recent attack, and recovered in two months, her recovery being due, so far as appeared, to the fact that she was discovered to be suffering from glycosuria, and was treated dietetically until the sugar disappeared. This supposition is supported by the fact that whereas during the pre-

[a] Report of Royal Commission. Vol. VI., p. 413.

[b] "Glycosuria and Insanity," *Med. Press and Circ.*, Jan. 1, 1902.

vious eighteen years she had suffered from biennial attacks of depression of gradually increasing severity, she had since been on the whole very much better mentally up to shortly before the present attack, a state of affairs attributed to the fact that she dieted herself. The history of the recent illness is as follows:—

Case III.—Married woman, aged forty-nine, admitted with the history that she had been rather out of health for some months, but not mentally ill until about a month previously, when she rather suddenly became depressed after suffering for a short time from insomnia, and also, it was thought, over-exerting herself. The depression was of a weak querulous character, with fretful irritability, and there was a good deal of restlessness and insomnia. She was sent to Farnham House by her own request, and on admission showed all the ordinary symptoms of a mild melancholia—depression, loss of conscious affection for relatives, loss of power of concentration, difficulty in decision, impairment of memory, reduction in acuteness of the special senses and of touch, and slight exaggeration of the knee reflexes. There was also much restlessness and fretfulness. The urine contained a considerable amount of sugar. She was dieted, and on the theory suggested by the writer some time ago,[a] that the mental symptoms in such cases are due to the taking up of the hæmic oxygen by the sugar circulating in the blood, she was given oxygen to inhale. She said that she felt somewhat better after it; but the results were not sufficiently marked to induce continuance of the trial. Aspirin was also tried, but on the first occasion without result; in fact for some months there was no permanent improvement either in her mental state or in the quantity of sugar excreted, the largest amount recorded being 54.3 gr. in twenty-four hours. About six months after admission the sugar markedly diminished, with coincident improvement in the mental state; a fortnight later it had disappeared completely; and after another nine days the patient was discharged recovered, having been under treatment for nearly seven months. Whether the recovery was due to her having been placed on a mixture containing sodium acetyl-salicylate it is difficult to decide positively, and aspirin had produced no effect when previously tried.

[a] "Note on the Pathogenesis of Diabetic Insanity," *Journ. of Ment. Sci.* Vol. XLVIII., p. 735.

Thus, this later attack has in no way weakened the original theory of the origin of this mental ailment.

Forms of Mental Disease.—Amongst the admissions melancholia was, as usual, the prevailing form of disorder, accounting for nearly 30 per cent.; but there was also an unusually high percentage of cases of mania, which, in the acute form, is, according to the prevailing opinion, not so common a variety of insanity as it used to be. That melancholia should predominate is not surprising, when one recollects that of all forms of insanity it represents the smallest deviation from the normal, and in its lighter forms involves little, if any, affection of the intellect. The remaining admissions were made up of cases of dementia (organic, alcoholic, or senile), with one of general paralysis, one of alcoholic paranoia, already detailed, and two sane cases of drug habit, one of alcohol, and one of morphin, which will be referred to again.

Of the discharges, one was a very typical case of the less common *puerperal melancholia.* The attack began about three days after confinement, and was marked by delusions of an unpleasant type, such as that demons were masquerading in the forms of the patient's husband and sister, and that she was to be poisoned, and so on; also by resistiveness and suspicion. She became very emaciated, despite special diet; and every form of treatment that could be thought of, including thyroid, failed for a long time to produce any marked improvement. Some eight months after the beginning of the attack, however, she began to make progress, and although not quite recovered she was sent home on probation about three months later, where, as is not uncommon in such cases, she completed her recovery satisfactorily, and was discharged absolutely just a year from the beginning of the attack. The length of the illness is characteristic of this form of puerperal insanity. The discharges also included a case which Kraepelin would probably consider one of the hebephrenic form of "dementia præcox," and an interesting and very clever paranoiac with delusions of persecution,

who, though incurable, was greatly improved. His case was an exemplification of the occasional truth of an axiom once laid down to me by a shrewd old Scotch attendant—"It takes a clever man to go mad."

Physical Disorders and Symptoms.—Only about 15 per cent. of the cases admitted could be considered in sound bodily health, the rest being found to be suffering from cardiac valvular disease or weakness, albuminuria, glycosuria, hepatic enlargement, hemiplegia, or anæmia, while one was in very low general health, and one had suffered from fits.

Amongst the patients actually under treatment, *albuminuria* was found in twelve cases, four of which were cases of actual melancholia, while all the rest except three were either depressed or suffered (at times or always) from delusions of an unpleasant type. One of the remaining three was a general paralytic, and two were dements subject to occasional attacks of angry excitement. On the whole, a tendency to depression predominated in these cases.

As regards *glycosuria*, to which a good deal of attention had been devoted in former years, the conclusion was long since arrived at that when transitory it possesses little significance in mental disease, being merely one expression of the metabolic disorder which prevails. It may be mentioned, however, that it was found in eight cases during the year, of which four were melancholic and two demented (general paralytics), the others being the case of acute mania detailed above, and a sane alcoholic.

Arterial pressure was observed on admission in seven cases, in two of which it was found to be normal, although one of these was melancholic, thus being an exception to a very general rule. In the remaining five cases it was high, but they included two alcoholics suffering from nephritis. Both, however, were more or less unhappy at times, while two of the others were distinctly depressed. The remaining case was one of subacute mania, but the

patient also suffered from depression at times, and was rarely contented for very long. On the whole, it can only be said that as a general rule depression is associated with high blood-pressure, exaltation less regularly with low. In all these cases the method of recording blood-pressure was to take the point of maximum pulsation shown by Hill and Barnard's sphygmometer. It is believed, however, that the method of taking the *maximum* arterial pressure is a better one, and the writer intends to adopt it in future.

As regards the *general health* of the institution during the year only a few remarks will be made on a case which unfortunately died after an operation, as the manner of the patient's death presented some points of possible value.

Case IV.—The case was that of a gentleman suffering from *folie circulaire*, who was admitted in 1904 as a transfer from the Royal Edinburgh Asylum, to which he had been sent in 1899, being at that time in the maniacal stage, and inclined to be violent and dangerous. While there he was at first exceedingly troublesome and hard to manage, but after a year or two the attack was brought to an end by heroic doses of bromide, of which he received 200 grains daily over a period, I believe, of two or three weeks, without suffering any harm whatever. He remained well for about eighteen months, and then passed into the stage of depression, which lasted up to the winter of 1907; but he had then improved so much that he was allowed to spend Christmas with his family, and he was even better after his return. For some considerable time an enlargement of his prostate had been giving him trouble, and as it was certain that the stage of excitement would not be long delayed, the decision was arrived at, taking advantage of the period of mental health, to have the gland removed, on the advice of one of the foremost surgeons in Dublin, and with the express approval of a medical member of the patient's family. An additional reason for this step was the fact that sexual excitement had played a large part in previous maniacal attacks, and it was hoped that removal of the prostate would to some extent obviate this. The operation was performed successfully by the above-mentioned surgeon at a nursing home in

Dublin, and all went well for about a fortnight, when the patient began to get noisy, elated, and somewhat troublesome, and would not be kept longer at the home. On his return to Farnham House he became rapidly worse, and it was soon necessary to send away his two nurses. He grew exceedingly restless and troublesome, talked incessantly, and it was found quite impossible to keep him quiet. However, his bodily health improved for some days, but he then had a slight rigor, and his temperature went up. This, it may be said at once, was due to a testicular abscess, which subsequently opened. He had been taking a little bromide before leaving the home, and after the rise of temperature a mixture containing 20 gr. doses had been ordered thrice daily; but about a week later, in view of his increasing unmanageableness, it was decided to try the method which had proved so successful at Morningside, and a drachm of bromide was ordered thrice daily, and kept up for about a week. Meanwhile the temperature remained above normal, and as he looked ill the bromide was then stopped altogether. Unfortunately, symptoms of pyæmia developed, and notwithstanding the use of saline transfusions, antistaphylococcus serum, and every other mode of treatment that could be thought of, he sank and died about a week later.

It is obvious that the restlessness must have broken down granulation tissue and opened a way for the entrance of infection; but perhaps this does not fully explain the supervention of pyæmia so long after the operation, and it may be that, as was suggested, bromide has the power of lowering the resistance of the tissues to pathogenic organisms. Nothing, however, is really known on the subject; but in view of possibilities one should hesitate to order bromides in any considerable doses in cases of operation or infective disease.

Treatment.—Hydropathic treatment in the form of the *wet-pack* was used with three excited patients, but did not prove of as much advantage as on some previous occasions, though it sometimes induced sleep. It would seem to be more useful in the excitement of early acute mania than in attacks of excitement occurring in the course of more chronic cases.

Of *thyroid treatment* some additional experience was

acquired, as it was employed in seven cases during the year. As applied to mental disease, it consists in the administration of large doses (45, 60, or 75 gr. in the day) of the dried gland, over a period of ten days to a fortnight, the patient being kept in bed and treated as if suffering from a mild fever. One of the cases was discharged recovered in less than a month, and in two other cases, which were more chronic, improvement at once set in, and, though slow, proved persistent. Though traces of depression are still present, both are now able to live in the outside world, and one is working as a hospital nurse. A fourth case recovered completely in about six months, but it is doubtful if any share of the credit for this cure can be given to the drug. All these were melancholics. Of the remaining three, one benefited slightly for a time only, and the remaining two were if anything not so well—indeed, in one, an elderly melancholic, the drug had to be stopped owing to its weakening effect on the heart; while the other gave a good deal of anxiety from the same cause, saline rectal injections having to be used on several occasions. While, therefore, there is no doubt that the treatment is sometimes highly beneficial, it should be used very cautiously, and not at all in the case of old persons or those with weak hearts. The writer has even known a patient to die of cardiac failure a few days after the cessation of a not severe course, though here there were contributing circumstances.

Atropin treatment was used in two cases of alcoholism and one of morphinism. In the latter it proved a complete failure, but one of the alcoholics remained a total abstainer up to the time of his death, which unfortunately occurred from an accident a few months after he had left the institution. The other was still at Farnham House at the end of the year.

Suprarenal gland was found very useful in a case of subacute mania with a good deal of excitement and violence. This drug, which was introduced into lunacy

practice by Dr. Easterbrook and the writer[a] independently, is given with a view to raising the blood-pressure in the hope of indirectly affecting the mental state, blood-pressure being found to be low in excited conditions. In this case the blood-pressure was often low, and the drug undoubtedly kept the excitement in check when given in doses of ten to twenty grains of the dried gland thrice daily. On two or three occasions when it was stopped the patient became definitely worse at once, improving again when it was repeated. Unfortunately, this good effect did not pass into permanent improvement; and in some other cases the drug was not so successful.

The newer so-called "nerve-tonics" have also been tried, and it may be said that the writer has been on the whole disappointed with the effect produced by the *glycerophosphates*. The mixed *formates*, however, seem undoubtedly valuable, and it is believed that they are the best of the more recent introductions. *Lecithin* was found useful in the case of an elderly melancholic, but it seems to require a somewhat prolonged administration.

The use of *oxygen* in diabetic insanity has already been referred to. Naturally it could at best be only palliative.

ART. VIII.—*Notes and Comments upon Some Cases of Gastric Surgery.*[b] By WILLIAM TAYLOR, M.B. Univ. Dubl.; F.R.C.S.I.; Surgeon to the Meath Hospital and County Dublin Infirmary.

GASTRIC surgery in one form or another has been discussed so frequently at this Club during the past few years that a member requires more than the average amount of courage to bring the subject formally forward again.

If one possesses even average powers of observation and intelligence he learns not only from his own mistakes but from those of others, provided he sees them or hears of

[a] *Journ. of Ment. Sci.*, XLVII., p. 708, 1901.

[b] Paper read before the members of the Dublin Biological Club in May, 1908.

them. The occurrence, then, of three cases in my practice within a comparatively short period, in which a wrong diagnosis was arrived at after the abdomen had been opened and the stomach most carefully and thoroughly examined, and after the operative findings had been compared with the clinical histories and ordinary physical examinations, must serve as my excuse for bringing the subject once more before the Club.

Case I.—Mrs. Mac—., aged forty-eight years, a tall, emaciated woman, was sent to me from King's Co. some thirteen months ago. Her complaint was that she vomited after almost every meal; that she was suffering a great amount of pain; that she had become so thin and weak that she feared she had but a short time to live. The interval between eating and vomiting varied from one to four hours, but, during the interval, she felt so distended that she not unfrequently loosened her corsets to obtain relief. The vomitus never contained any blood. The bowels were confined, but she attributed that to the fact that she vomited almost everything she ate. Her symptoms dated back for some ten months. Prior to that she stated that she occasionally got an attack of indigestion, but, on the whole, said she had little to complain of. To use her own expression, she had always been a healthy, hard-working woman and the mother of seven healthy children. On physical examination the stomach was found to be dilated to such an extent that the great curvature extended to midway between the umbilicus and symphysis pubis. A hard, painless tumour was felt, and could be seen a little above the umbilicus and slightly to the right of the median line. It seemed about the size of a duck's egg, and appeared quite freely movable. The gastric contents were withdrawn and examined after a test-breakfast, with the result that free HCl. was absent and lactic acid was present. The history, clinical findings and report of the examination of the stomach contents taken together led us to diagnosticate the case as one of pyloric cancer, and to recommend operation with a view to its removal. Two days subsequently the operation was proceeded with. The abdomen having been opened in the usual way, the tumour was easily withdrawn, and presented the appearance we have been accustomed to look upon as typical of cancer of the alimentary tract. A couple of enlarged glands were found in the lesser omentum. Considering

the emaciated and weakened condition of the patient I determined to perform a posterior gastro-enterostomy first, and then proceed with the partial gastrectomy if the patient's condition was considered suitable. The gastro-enterostomy was rapidly performed, but the anæsthetist thought the patient too weak for further interference that day, consequently the abdomen was closed and the patient returned to bed. Reaction was slow, but she ultimately did well. There was no vomiting, and at the end of seventeen days she was able to take and enjoy any food she got. On the twenty-first day after the first operation I re-opened the abdomen to proceed with the performance of the partial gastrectomy, but, to my utter astonishment, on withdrawing the pyloric end of the stomach, the tumour, which at the former operation was hard and about the size of a duck's egg, had now become soft, and was no larger than a horse chestnut. The glands previously felt in the lesser omentum were also smaller and softer. The abdomen was immediately closed, and convalescence was rapid. I saw this patient five months subsequently, and she told me she had gained three and a half stones in weight after her return home, and, so far as appearance was concerned, she looked fully fifteen years younger.

Case II.—Mrs. B., aged fifty-five years, sent to me by Dr. Stritch with the history that for some five years she had suffered from dyspepsia and indigestion. She had never vomited until the present illness. For some twelve months before coming to me she had vomited daily and suffered great pain. She vomited only once a day until two weeks before admission into hospital, when she was vomiting after each meal. The vomitus never contained any blood, but was frothy, and had a very sour smell and acid taste. She lost flesh rapidly, and at the time I saw her she was little more than skin and bones. Her vertebral column could be easily seen through the abdominal wall. The abdomen above the umbilicus was rigid, but one could easily detect a tumour above and slightly to the right of the umbilicus. It was slightly movable from side to side, but we were doubtful about its mobility in a vertical direction. The stomach was moderately dilated. The usual test-breakfast was given, and the stomach contents withdrawn an hour subsequently and examined, with the result that HCl. was absent, and that lactic acid was present. This patient was admitted the day upon which I first operated upon the patient whose case I previously detailed. A diagnosis

of cancer was made and operation was advised. The abdomen having been opened two days later the tumour was found to involve the pylorus and portion of the lesser curvature. There were a number of adhesions, so that it could not be withdrawn easily; however, it was obvious that on cutting or separating the adhesions we could remove the growth. On further examination of the stomach a well-marked hour-glass constriction was found. The constriction was about one and a half to two inches long, and situated about midway between the œsophageal opening and pylorus, as determined by the lesser curvature. Considering the condition of the patient I determined to establish a communication between the cardiac pouch and the jejunum, and if the patient's condition was then thought suitable I had determined to remove the entire pyloric portion of the stomach, making my stomach section through the constricted area, and then close the cut duodenum and narrow cut end of stomach. On completing the gastro-enterostomy, however, the patient's condition did not seem sufficiently good to warrant any attempt to complete my original intention, but, in order to drain the pyloric pouch until such time as I could make an attempt to perform the partial gastrectomy, I did a gastroplasty, which took but a few minutes to complete. The subsequent course of the case was quite satisfactory. She lost her pain, there was no vomiting, and she took nourishment eagerly and well. At the end of three weeks she had gained in appearance far beyond our expectations.

With the experience then before me of the findings at the second operation upon the first patient I decided to await further developments for a while. Six weeks after operation one could detect a thickening only where the tumour had previously been easily felt. The muscular rigidity disappeared, and the improvement in the patient's general appearance and gain in weight were steady and continuous. Three months subsequently the patient came to report herself. She then said she was a new woman; she was able to eat anything, and she felt quite well and strong.

On the 21st of this month (May, 1908)—that is, over thirteen months since the operation—I saw this patient, but she had got so stout I did not recognise her. She is quite well. I failed to detect any thickening about the pyloric region, but the amount of adipose tissue that had accumulated in her abdominal wall rendered palpation rather difficult.

Case III. was that of a woman, aged sixty years, who was sent to me from the Coombe Hospital. The history she gave on admission was that for about three years she had occasional attacks of pain in the abdomen and stomach of an ill-defined character. During the three months immediately preceding her admission into hospital the pain became so aggravated as to compel her to lie with her stomach pressed against the side of her bed, or to roll in agony upon the floor. During this period she was quite unable to make use of anything in the nature of food. Everything she ate was vomited soon after. The vomitus was generally frothy, and consisted chiefly of what she had recently eaten, and on several occasions during the few weeks just prior to her admission into hospital the vomitus was dark—"like porter." Almost three months previously she had discovered a lump in her stomach, which was increasing rapidly in size. The woman was thin and emaciated to a pitiable extent, and her age seemed more like eighty than sixty years. On examining the abdomen one could easily see projecting through the attenuated walls a tumour situated immediately above and to the right of the umbilicus. The tumour felt hard and irregular, and was obviously quite adherent to the abdominal wall. There was slight muscular rigidity, but the patient did not complain of any tenderness on palpation. There was moderate dilatation of the stomach. Examination of the stomach contents after a test-breakfast for free HCl. gave a negative result. Lactic acid was not examined for. The diagnosis of cancer was made, and gastro-enterostomy recommended to relieve the vomiting and possibly also the pain. Three days later the abdomen was opened to the left of the tumour, and on introducing the hand the tumour was found to be firmly adherent to the abdominal wall. A few enlarged glands were felt along the lesser curvature, but no secondary deposits could be detected elsewhere. We then decided that by removing the portion of the abdominal wall to which the growth was adherent it would be possible to completely excise it. The anterior sheath of the rectus was dissected up off the tumour, showing apparently perfectly healthy muscle underneath. The rest of the abdominal wall to which the tumour was adherent was then excised by an elliptical incision, and the tumour and stomach withdrawn. The growth presented the naked-eye appearances of cancer starting in the pylorus. It was well limited towards the duodenum, but was spreading along both

curvatures of the stomach. About one-third of the stomach was resected, and the operation completed by inserting the cut end of the duodenum into a fresh opening made in the posterior wall of the stomach, as described by Kocher. The defect in the abdominal wall was repaired, and the patient removed to bed. Recovery was uninterrupted and rapid. The pathologist's report of the growth showed it to have been an inflammatory mass around an old-standing chronic gastric ulcer.

Examination of the gastric contents withdrawn after a test-meal eight months subsequent to operation showed that free HCl. was still absent. I saw this patient one and a half years afterwards, and found her perfectly free from any stomach trouble. Her only complaint was that she did not get enough to eat and that "Guinness's stout was very scarce."

I might here mention that Dr. Craig saw each of these patients, and agreed with the diagnosis.

The diagnosis of ulcer of the stomach cannot always be accomplished with that certainty and facility we are led to believe from a perusal of the literature of the subject. Gastric ulcer is mimicked by many other conditions. Even with the abdomen opened it is impossible to be positive about the presence of an ulcer. Mucous ulcers may and do exist without producing on the exterior of the stomach any discoverable evidence of their existence.

Such conditions, however, are best treated medically, and I should be sorry to advise the routine performance of gastro-enterostomy in cases in which the clinical features pointed strongly to the presence of ulcer, but in which there exists no external evidence of such a condition on exposure of the stomach. One should have positive evidences of ulcer, such as will convince the most sceptical onlooker, before proceeding to the performance of gastro-enterostomy. Perfection in the technique of the operation has made it so safe that it has become rather fashionable with some surgeons.

In fact, at one time it seemed almost as if the status in the surgical profession of some men depended upon the number of successful gastro-enterostomies they could report as having been performed by them each week or

each month as the case might be. Howard Kelly some years ago described the mania for removal of the appendix vermiformis which some operators acquired as "surgical hysteria." I think the term might be applied very aptly to the condition of mind which led some surgeons to perform the operation of gastro-enterostomy for almost every conceivable condition associated with gastric phenomena—at any rate it is one of the mildest terms that could be applied to their condition.

Gastro-enterostomy has been performed by more than one surgeon for such conditions as the gastric crises of locomotor ataxy, for the vomiting associated with uræmia, and for the irritability of the stomach frequently seen in phthisis. I have known gastro-enterostomy to have been performed for what was said to be severe hæmatemesis from a chronic gastric ulcer, yet this patient died between three and four months subsequently from a similar condition, and on making a *post mortem* examination there was no evidence of disease in the stomach, but the hæmorrhage was shown to have come from a ruptured aneurysmal dilatation in the wall of a vomica in the left lung. Both lungs were extensively affected with phthisis.

From my own experience, though chronic gastric and duodenal ulcers are common, I am convinced that they do not exist so frequently as the number of gastro-enterostomies performed in the absence of pyloric stenosis from other conditions would lead us to expect. I should like to know what the subsequent histories of those patients are upon whom the operation has been performed unnecessarily.

In each of the cases I have detailed above HCl. was absent from the gastric contents before operation, while in the partial gastrectomy case it was still absent eight months after operation. These cases simply emphasise the fact that the absence of free HCl. from the gastric contents after a test meal is not of such vast import as its presence is. In other words, the absence of free HCl. is not positive proof that cancer is present, whereas the

presence of free HCL. in normal or increased amount is practically positive proof that cancer is not present.

Should one be satisfied with a single examination of the stomach contents if HCl. is absent after the usual test breakfast? I think not, for it is conceivable that it might require greater powers of stimulation than tea and toast possess to call forth a secretion of free HCl. in some of those emaciated and weakened individuals we are called upon to examine. There could not surely be any harm done by giving a test meal of, say, a beefsteak, with or without sauce and mustard, and withdrawing the contents of the stomach from two to two and a half hours after. If free HCl. was persistently absent after such a test meal, as well as after giving the usual test breakfast, its absence might be of greater significance.

From what I have read and from what I have seen it would appear to be absolutely impossible to make a positive diagnosis between chronic ulcer with tumefaction and cancer in some cases unless the diagnosis is assisted by the aid of the microscope. Histories as detailed by patients are often incorrect, misleading, and unreliable, while age is of no account in arriving at a diagnosis. I have seen an old woman of over seventy years die from chronic gastric ulcer giving rise to hæmorrhage—this was proved by *post mortem* examination. On the other hand, I have seen a young man of thirty-one years suffering from extensive cancer infiltrating almost the entire stomach. Fortunately, if one does mistake ulcer with tumefaction for cancer, and performs partial gastrectomy, as I did in the third case I have reported, no harm is done—in fact, the very best line of treatment has been carried out. It is questionable whether the performance of a posterior gastro-enterostomy is in itself really sufficient surgical treatment for chronic gastric ulcer. Professor Rodman, of Philadelphia, has been urging for some years past the necessity or advisableness of resection of the ulcer or ulcer-bearing area in addition to the performance of gastro-enterostomy.

That would mean the performance of pylorectomy in many cases in addition to posterior gastro-enterostomy – a procedure which must necessarily add to the mortality of the operative treatment of gastric ulcer; but there are strong reasons for the recommendation. Moynihan, Mayo Robson, the brothers Mayo, and many others recognise the advisableness of this line of treatment. Moynihan, in a paper published in January of this year, adopts Professor Rodman's suggestion, and advises the excision, where possible, of the ulcer or ulcer-bearing area in addition to the performance of gastro-enterostomy. The advisableness of adopting this line of treatment is mainly due to the frequency with which cancer of the stomach develops upon old-standing ulcer.

Few amongst us seem to appreciate the fact that cancer of the stomach has its origin in chronic ulcer in over 50 per cent. of the cases.

Formerly the estimate that 6 per cent. of benign ulcerations in the stomach eventually became carcinomata was considered excessive and quite out of proportion to the facts. That percentage is now known to be much too low. To establish correctly this fact is without question one of the most important points in connection with the surgery of the stomach. It is here worth while recording what Moynihan said in the *Practitioner* for September, 1904. In that paper he estimated that 10 per cent. would cover the cases of cancer originating in ulcer. Contrast with that statement the same surgeon's experience as recorded in the *British Medical Journal* of Feb. 17th, 1906 less than two years subsequently—in which he showed that of—

22 gastro-enterostomies for cancer, 16 gave a history of preceding gastric ulcer = 72.1 per cent.

9 gastrectomies for cancer, one gave a history of preceding gastric ulcer = 66 per cent.

3 jejunostomies for cancer, one gave a history of preceding gastric ulcer = 33 per cent.

5 gastrostomies for cancer, one gave a history of preceding gastric ulcer = 20 per cent.

In all of 39 cases operated upon for cancer 24 gave a history of preceding gastric ulcer = 61.5 per cent.

Latest report—27 cases out of 45 cancers operated upon gave a history of preceding gastric ulcer = 60 per cent.

Mayo Robson says that "no less than 59.3 per cent. of cases of cancer of the stomach upon which he had operated gave a history of chronic ulcer.

The brothers Mayo, in the *Annals of Surgery* for June, 1907, have shown that in 54 per cent. of the cases of cancer of the stomach submitted to resection in 1905 and 1906 by them (69 cases), either the clinical histories or pathological examinations of the removed specimens made it certain that the cancers had their origin in ulcers.

What stronger argument can be required than the knowledge of these facts to urge the advisableness, nay, the necessity, of seeking surgical assistance in the treatment of chronic or recurring ulcer of the stomach?

Cancer of the stomach forms one-third of all cancers of the body, and 80 per cent. of gastric cancers are situated at the pylorus, at which situation it is only reasonable to expect pronounced symptoms to be produced at a relatively early period in their course, yet it is surprising that surgeons see so few of these cases in a stage suitable for operative interference. Personally, I can recall only three cases in the past eight years which I saw at a period suitable for radical operation, while, on the other hand, I have seen but four cases in which even gastro-enterostomy seemed advisable. Why should this be so? Is it that the position of surgery in connection with the treatment of gastric cancer is as yet unknown or not sufficiently appreciated? In this connection I will close by directing attention to the following results of partial gastrectomy for cancer:—

Mayo's latest statistics show a mortality of 11.45 per cent.

Deaver's latest statistics show a mortality of 11.11 per cent.

Deaver says we may expect 10 to 15 per cent. of complete cures of all cases operated upon.

Mikulicz shows that 23.9 per cent. of those that survived operation were alive and well over three years after operation.

Petersen and Colmers found 33 per cent. of those that survived operation were alive and well over three years after operation.

Patersen, from British sources, found 41.6 per cent. of those that survived operation free from recurrence three years after operation.

ART. IX.—*Upland Surface-water as a Carrier of Lead.*[a] By HOWARD ENGLISH, M.D., D.P.H., B.A., Univ. Dubl.

WATER is well known to have a solvent action on metallic lead, and this is especially the case in a variety of water very commonly used for household purposes—namely, upland surface-water. It is to the solvent property of this water on lead piping that I wish to call your attention, its harmful effects on the consumers, and the means at our disposal for relieving the sufferers and preventing a recurrence of the trouble. All waters except those containing alkaline carbonates, phosphates, silicates, or sulphates possess this solvent action on lead, and these last are without it only in virtue of the fact that the salts which they contain combine with the dissolved lead and form an insoluble coating of carbonate of lead or other compound which, adhering to the interior of the pipes, protects them from further erosion. When water comes in contact with lead a relatively insoluble oxyhydrate is formed with the assistance of some substance such as nitrates, which are always present in greater or lesser quantities as the case may be. This oxyhydrate is in itself comparatively harmless, but is freely soluble in acid solutions. Now, upland surface-water is rich in a material called humic acid, which is derived from decom-

[a] A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, December 19, 1908.

posing vegetable matter in the collecting grounds. By this means lead is presented to the unfortunate consumer in varying quantities from the smallest fraction of a grain per gallon upwards, according to the solvent power of the water. In the case in point a certain town consumed water for a large number of years which averaged no less than four to five grains to the gallon, and when the consumption of water containing one-twentieth of a grain to the gallon has caused ill effects the results of the continuous consumption of this water can better be imagined than described.

Most of the salts of lead when taken into the body are dissolved or kept in solution by the gastric juice and bile, and are then absorbed into the system. Such lead as escapes absorption in the upper part of the digestive tract is precipitated as a sulphide in the large intestine, and as such is excreted from the body.

Continued small doses over a large period of time are more toxic than a few larger ones, as lead is essentially a cumulative poison: hence the prevalence of lead-poisoning in a town the drinking water of which contains even a very small quantity of the metal.

Another agent which assists the solvent action of water on metallic lead is the presence of air in the pipes, and in most towns the water is cut off from the houses periodically for repairing purposes, so that the supply pipes are quickly emptied, and remain in that state for a considerable time. Besides this, the practice has been, for economical reasons, to lay down "leads" of leaden piping for the supply of isolated streets or detached rows of houses. In the case of one row of six houses in the town in question, supplied by one of these "leads," or branch pipes, a couple of hundred yards in length, every adult male, and several of the women as well, suffered from plumbism to a greater or less extent.

Lead is found in every organ of the victim's body, and exists in the tissues as an insoluble albuminate. To turn to the symptoms of lead-poisoning, a great number of

people appear to be relatively immune, as one case of poisoning may occur in a house where all the other inhabitants escape, although all consumed the same water. One woman stated that she was in the habit of drinking large quantities of contaminated water without any ill effects, while her husband, who consumed comparatively little, suffered very severely. Most authorities agree that the female sex is chiefly affected, but in this instance the majority of the sufferers were males, though the women were not entirely exempt from the scourge.

Indulgence in alcohol seems to be a powerful predisposing factor, as most of the men seriously affected were beer drinkers. Irregular habits, improper diet, exposure, and privation also have some exciting influence.

The earliest symptoms of chronic lead-poisoning are disturbances of digestion, constipation, loss of appetite, foul condition of the mouth, accompanied by an unpleasant metallic taste, continual fœtor of the breath, and anæmia, the patient's skin assuming a peculiar yellowish green tint. The well-known blue line in the gums is from this stage onwards a fairly constant sign. It is found just at the junction of the teeth and gums, and is usually more strongly marked in the upper jaw. It is most conspicuous in the case of patients who neglect the care of the teeth, and is due to a deposit of sulphide of lead in the mucous membrane of the gums—a deposit caused by the interaction of the metal in the tissues with the sulphuretted hydrogen given off in the mouth from decomposing particles of food. A similar phenomenon has been observed also in the shape of bluish patches in the mucous membrane of the cheeks, and this is stated to be most frequently present in the inside of the lower lip. This state of affairs, if permitted to go unchecked, progresses, and presently the sufferer may be attacked by the well-known colic. This affection may come on at once, or may be preceded by a prodromal period which is characterised by transient abdominal pains accompanied by the symptoms detailed above. Lead colic may be

described as a series of attacks of acute abdominal pain unaccompanied by any rise of temperature, the pulse being slowed often as low as forty to the minute. The attacks are of several minutes' duration, recur frequently, and the intervals are usually characterised by a continuous cramp. The pain, as a rule, makes itself felt in the neighbourhood of the umbilicus, radiating from thence, but may arise in any part of the abdomen, and is very often unilateral. It is relieved by pressure, but in some cases the abdomen is exquisitely tender to the slightest touch.

The abdominal walls are intensely retracted, the abdomen presenting a scaphoid appearance, but there may be distension. There are often nausea and vomiting, and the patient during an attack is in a condition of extreme restlessness. Extreme constipation is the rule, though there may be diarrhœa. The urine is scanty, urea being diminished, and often contains albumen.

The next symptom is paralysis, which may make its appearance at any time in the course of the disorder. The most usual form is a bilateral paralysis of the extensors of the forearms and hands, presenting the well-known appearance of drop-wrist. Almost any muscle or group of muscles in the body may be attacked, such as the triceps and deltoid group, the extensors of the legs, and soforth. Cases have been described of paralysis of the ocular muscles, particularly of those supplied by the third nerve. Some patients have died of asphyxia due to the paralysis affecting the muscles of respiration. The onset resembles that of any case of peripheral neuritis. There are sensations of cold and numbness, hyperæsthesia, impairment of motor power, awkwardness and stiffness in the muscles affected. Pain on deep pressure of the calf muscles is often present. The prognosis is usually fair, and depends on the general condition of the patient, the duration of his exposure, and the amount of degeneration present in the muscles. In relapses, as a rule, the prognosis becomes worse.

Some authorities describe a condition known as saturnine arthralgia, in which the tissues round joints and the contiguous muscles are affected. The knees, elbows, shoulders, and back suffer most. The patient suffers paroxysmal pains of a burning, tearing nature in and round the affected joints, accompanied by painful contractions of the muscles. The pain is relieved by pressure. There is no swelling, redness, or other sign of inflammation present.

Another symptom of lead-poisoning is encephalopathy, which may come on at any stage. Its onset may be sudden or with such prodromata as headache, dimness of vision, vertigo, disturbance of sleep, derangements of the special senses, a feeling of constriction of the pharynx, and other symptoms of uneasiness. It may be the first symptom of lead-poisoning, or may attack those who have already suffered in other ways, such as from colic or paralysis. Three varieties are described—the delirious, the comatose, and the convulsive form. It may be confounded with an uræmic or an apoplectic seizure, either of which itself may be a sequela of plumbism. The prognosis is grave, the patient usually succumbing. Optic neuritis and amblyopia are frequent symptoms. In women abortion and miscarriage are common. Patients may succumb at any stage of the disorder, and the majority are cured by the removal of the cause, but those who are exposed for a long time pass into a condition of cachexia, are profoundly anæmic, suffer from paralysis and constant attacks of colic, and finally, if they still survive, develop arteriosclerosis, chronic interstitial nephritis and gout: in short, they become prematurely old, and are liable at any time to die of cerebral hæmorrhage, uræmia, or some intercurrent disease, such as phthisis. Most of the cases seen suffered from the mildest form of plumbism—namely, malnutrition, anæmia, wasting, and constipation. In nearly all these cases the blue line was present in the gums. Others suffered frequently from colic in addition, which was often very intractable. One

patient had well-marked wasting and paralysis of the extensors of both forearms and muscles of the back of his hands. In addition he had numerous attacks of colic, with obstinate constipation and nausea. He was anæmic and dyspeptic. He improved greatly under treatment, both local and general.

Another case was totally blind for eight months, with no other signs of plumbism except a blue line in his gums, some anæmia, and digestive disorders. He lived in a row of six houses where every man was attacked and all the women escaped except two. He made a complete recovery. Another patient suffered from colic, had no paralysis, but finally developed arteriosclerosis and chronic granular kidney, with albuminuria, and finally died of cerebral hæmorrhage before he was fifty. There was a particularly sad case, a boy of twenty-two, who for years had suffered. He was cachectic and anæmic, had the blue line, had paralysis of the extensors of his forearms, had numerous attacks of colic. Urine was highly albuminous—sp. gr. 1020. Towards the end he suffered racking pains in his elbows and knees, cramps in his muscles, had continuous attacks of colic, which no treatment seemed to relieve, and finally died during an attack. He had extremely atheromatous arteries, which one might have found in a man eighty years of age.

A lady developed a sudden attack of coma. On examination a well-marked blue line was found in the gums. Lead encephalopathy was diagnosticated. In a short time she recovered, and was treated successfully for plumbism. Another lady had for years suffered from dyspepsia and constipation. Blue line was present. She had a number of miscarriages, and finally developed arteriosclerosis and chronic interstitial nephritis. She became very anæmic, and suffered a great deal from gout. Finally she died suddenly from uræmia without any premonitory symptoms except headache and slight mental disturbance.

These are only a few instances of hundreds who suffered in a similar fashion.

Lead-poisoning in its earlier stages has a tendency to spontaneous cure, provided that its victims are removed from the influence of the metal, but very often cases suffer from relapses even though no fresh lead is introduced into the system.

Now, what remedies are we to use for all this? Treatment is concerned with the elimination of the poison from the system and the relief of the special symptoms. In addition to this, steps have to be taken to prevent fresh doses of the poison being absorbed. For elimination of lead the most usual drugs adopted are potassium iodide combined with, or used concurrently with, sulphates, such as those of magnesium and sodium. The *rationale* of the treatment seems to be that the iodide combines with the insoluble albuminate of lead to form a more soluble salt, the latter being excreted by the urine, and also into the bowel, where it is transformed into an insoluble sulphate, and is thence quickly removed by the action of the salines before it has time to do any further damage. Lead can be demonstrated in the urine within a very short time after administration of the iodide. For the colic, mild purgatives, such as castor oil and salines, are generally made use of, as they perform the twofold function of relieving the constipation and restoring the bowel to its normal state. Cathartics are contraindicated, as they tend to increase the spasm of the gut. Opium in some form is very often necessary to relieve the intense pain, and patients often derive great benefit from a warm bath or hot applications. The prone position may with advantage sometimes be adopted with a hard pillow passed beneath the abdomen.

Treatment of the paralysis consists in attempts to eliminate the metal with local treatment of the affected muscles in the form of massage and electricity, both the constant and the interrupted current being of service.

Amyl-nitrite inhalations are recommended for relief of encephalopathy. Anything else seems to be of little use.

Various expedients have been adopted to obtain a supply

of uncontaminated water, the simplest method being to empty the supply pipes every morning, or after prolonged contact. The fresh water as it flows through has no time to take up the metal, and a pure supply results. Unfortunately very few people can be persuaded to adopt this as a routine measure, and the evil soon becomes as bad as before.

Another method is to abolish all lead piping or jointing from the water system and substitute materials of iron or tin, or something similar, which is unaffected by the action of the water. This is rather troublesome and costly in a large town where lead has been previously used for branch pipes.

The best method of all is to alter the character of the water before its distribution. There are two ways of doing this. The first is to pass the water through a filter containing a layer of flint. In its passage the water takes up a certain amount of silicates, and these, by interacting with the dissolved lead, form an insoluble coating on the interior of the pipes and protect the lead from further solution. The second method is to add to the water a certain quantity of chalk. This substance acts in a similar manner. The quality of the water is altered, as it takes up a certain amount of hardness, but this inconvenience is insignificant when compared to the great boon it confers on the community by protecting it from wholesale poisoning in a most insidious manner.

ART. X.—*A Study on Hand Sterilisation.* By CHARLES GREENE CUMSTON, M.D., Boston, Mass.

(*Concluded from page 117.*)

REINECKE undertook other bacteriological investigations and reached unsatisfactory results with Fürbringer's method, but which considerably improved if carried out more thoroughly. He was even able to obtain sterilisation after treatment with alcohol, and, since Koch's experiments showed that this agent was not bactericidal, he believed that the

mechanical action of alcohol was due to the fact that it dissolved the fatty secretions of the skin, so that the bacteria therein deposited were dislodged and removed. Therefore, according to this way of thinking, in order to obtain a freedom from germs, it is necessary to rinse the hands afterwards in some sterile fluid.

On the other hand, Ahlfeld pointed out that the bactericidal property of alcohol was evident only when the bacteria are water-containing, and he pointed out that its bactericidal power is due to withdrawing their water.

Since absolute alcohol withdraws water more powerfully than when diluted, it consequently should possess the highest bactericidal powers according to this theory. On the other hand, alcohol can act only upon those forms of bacteria which are water-containing, and therefore, in order to develop its power, it is essential to first produce softening of the epidermic cells, and at the same time of the bacteria adherent to or inclosed within them, by means of a thorough scrubbing with soap and water. Now, if the alcohol is allowed to act when the epidermis is swollen, it withdraws the cells and bacteria into the water it contains. In the case of spores the bactericidal power of alcohol cannot be produced, because they do not contain water. Koch and Reinecke showed that catgut immersed for forty-five minutes in alcohol still contained spores, and from this fact it was proved that the bactericidal power of alcohol is merely a relative one. Even if it be denied that permanent forms of bacteria are not to be found in the epidermis, there nevertheless still remains the possibility that they are there. The spores of tetanus may, under unfortunate circumstances, remain attached to the hand; and, still more, it has been shown from various sources that the action of alcohol upon vegetable bacteria is by no means bactericidal when used according to the customary treatment of five minutes.

According to Gönner a slightly virulent culture of streptococcus will still show vital activity after remaining in alcohol for fifteen minutes, while according to Senger's investigations the *Staphylococcus aureus* is not destroyed after

a twenty minutes contact. In the deeper and tougher epidermic layers it is especially difficult to succeed in killing the bacteria with alcohol, because its deep action is interfered with on account of the alcohol forming a stiff external layer when first applied. This is especially true of highly concentrated alcohol, because its action on the deeper layers is prevented; therefore, absolute alcohol will naturally form a harder layer than when used diluted.

Contrary to Ahlfeld, Fürbringer and Reinecke, the use of alcohol is not considered as an improvement by Kronig, and he believes that the results obtained by these authorities are imperfect. According to his way of thinking, alcohol acts by producing a hardening of the tissues, so that the folds and crevices in the skin are tightly closed, and thus retain the germs contained in them, and make the removal of the latter by brushing a much more difficult affair. His experiments show that, even with the fifteen minute alcohol disinfection, it is not possible to render the skin germ-free, and that the bacteria cling with tenacity to the epidermis after its use. By the action of water afterwards applied the skin may be softened, and it is more easily removed together with the germs. The same process occurs after alcohol disinfection when the skin comes into contact with the tissue fluids. The epidermic layers swell again after evaporation or dilution of the alcohol, and, consequently, the contained bacteria become loosened, and are inoculated in the wound with facility.

Mikulicz has given a proof for this theory, because after washing in alcohol he obtained freedom from bacteria, while, on the other hand, in spite of sublimate or lysol disinfection, the results obtained were not so good. Similar results were arrived at by Landsberg, who, using alcoholic sublimate and thymol solutions, as well as pure alcohol, obtained excellent disinfection, but which was far inferior when a watery sublimate solution was employed. He attributes these imperfect results to the inability of preventing evaporation of the alcohol which results in the drying of the epidermis.

Ahlfeld thought that he was able to obtain the best results

on water containing media by the use of concentrated alcohol, while Senger asserts that this has the same value as when diluted alcohol is used, and that in reality the former authority reaches the most marked results when the alcohol is diluted. According to the latter authority, who examined the action of alcohol in various degrees of dilution, its disinfecting value increases up to a dilution of from 40 to 50 per cent., and then decreases when the dilution is continued.

Epstein asserts that all disinfecting power is absent in absolute alcohol, as well as in 80 per cent. alcohol, and that a 50 per cent. dilution possesses the greatest bactericidal power. Saul's experiments show that the disinfection with boiling absolute alcohol is nil, while Poten also concurs in this statement, finding that 50 per cent. alcohol gave the best results. On the other hand, Tjaden obtained a more marked bactericidal action with a 75 per cent. or 90 per cent. alcohol than with absolute or 50 per cent. alcohol.

According to their more recent investigation Fürbringer and Freyhan have verified Ahlfeld's opinion—namely, that the greatest bactericidal power is to be found in absolute alcohol, but they assert that 70 per cent. and 50 per cent. alcohol is of some value.

From all this it becomes evident that most contradictory opinions reign concerning the bactericidal power of alcohol in various degrees of dilution, as well as the explanation of its chemical action. Its value as a disinfectant is more frequently explained from its power to precipitate free albumen, as well as by withdrawing water and entering into its chemical combination. Senger believes that it is by the great disinfectant action on acetaldehyd in the pores of the skin that its results are due, while its cleansing and preparatory properties are supported by the fact, according to Braatz, that the air bubbles, which are present over the cutaneous surface, and offer an obstacle for the proper action of the disinfectant, burst more readily in alcohol than in water. If we now sum up the results obtained from experiments relative to the action of alcohol, it becomes evident that Fürbringer's opinion that alcohol acts principally through

its fat-dissolving and water-combining properties is verified. This power is the principal question in the preparation for disinfection. That the bactericidal power of alcohol is not absolute, and that even vegetable forms of bacteria with poor resisting powers can withstand it for some time, or even remain virulent, is also sufficiently proved by the above-mentioned experiments. For this reason an absolute guarantee as to its safety cannot be offered.

Although this is the case, excellent practical results may, nevertheless, be reached by its use, as has been shown by the recent investigations of Sarwey and Paul, and if it is able to withstand the severe bacteriological test, then this must be due to other advantageous properties of alcohol. As Reinecke has already shown, it first removes the loose epidermic scales, the sebaceous secretions and the bacteria contained therein. The exclusive action of alcohol, however, does not rest upon this mechanical point, since bacteria are still present in the deeper layers of the skin, as well as in the excretory ducts of the sweat and sebaceous glands, which are inaccessible to this mechanical disinfection, and which cannot be removed by the simple fat-dissolving properties of alcohol. Were this the case the application of ether would produce a result similar to that obtained with alcohol, which, however, is not the case; therefore, Reinecke's explanation should be regarded as insufficient.

The fat-dissolving properties come in question here, but not alone. The favourable experimental results rather rest upon the difficulty in removing the bacteria resulting from the shrinking of the skin, as pointed out by Krönig, and has been emphasised by Haegler; there are a large number of small folds in the skin visible under the microscope before the application of the alcohol; the hair follicles and mouths of the sweat ducts are closed, so that the corpuscular elements and bacteria are removed from the skin with much greater difficulty. From this unfavourable action of alcohol, which deceived many experimenters, and especially Reinecke, its use has been condemned, and it is not merely theoretically wrong to employ alcohol alone as a bactericidal agent, but

it is in reality also dangerous, because the retained bacteria may become loose during the operation and infect the wound. Consequently, it is much safer to consider alcohol of use only as a preparatory treatment for the action of some antiseptic solution. In this respect it acts chiefly from its fat-dissolving and water-combining properties. By dissolving the fat which has not been removed during the mechanical cleansing, and which is to be found between the loosened epidermic layers and in the glands, it allows an antiseptic in watery solution to more deeply penetrate and to develop a more energetic bactericidal action. This is quite possible, because a watery solution of the disinfecting agent combines with the alcohol covering the skin, and has also penetrated it. It should, however, be recalled that an effective action of the antiseptic will take place only when the alcohol has not been too long in contact with the cutaneous surface, and when the latter is not too highly concentrated, because under these circumstances the hardening action of the alcohol very soon becomes evident. In the modification of the Fürbringer method these conditions must be fulfilled if the bactericidal action of the disinfectant is to be obtained. After a most thorough mechanical disinfection the hands may be safely immersed for one minute in a 50 per cent. or 60 per cent. alcohol, which will not cause hardening by withdrawing the water from the epidermis. Before evaporation has taken place, the skin being still saturated with alcohol, it should be scrubbed with a hot sublimate or mercury cyanide solution at the strength of 1 : 1000. Thus the skin is in the required moistened condition, and an excellent condition for the action of the antiseptic is secured.

Taking all things into consideration, this technique fulfils all requirements requisite for attaining sterilisation as nearly as is possible. It possesses an advantage over other methods, inasmuch as those bacterial forms against which alcohol remains inactive can be destroyed, at least partially, by the mercury salts. To obtain an absolutely positive sterilisation is not possible, and this is due to the composite structure of the cutaneous surface. To kill all bacteria

which are deeply seated in the skin will probably never be accomplished by any method.

Since excellent results have been reached in practice, *but not in the laboratory*, with brush, soap and hot water, followed by alcohol, it occurred to Mikulicz that this technique might be simplified by combining the mechanical and chemical process in one act, and for this purpose he recommends the officinal green soap, made according to the third edition of the *Pharmacopœia Germanica*, as follows:—Olive oil, 6 parts; lye, 7 parts; alcohol, 30 parts; and water, 17 parts. He emphasises the fact that experimentally this soap has a certain bactericidal action on the staphylococcus—it penetrates the skin deeply and is non-toxic and odourless. Soaking in water first does not increase its activity, and, therefore, is to be omitted.

Landsberg had previously undertaken experiments with green soap, using it in part for preparation for washing with soap, and partly in the form of carbolic green soap. His experiments led to unfavourable results, because he found that the combination of soap, water, and alcohol considerably lessened the swelling up of the epidermis on account of the action of the alcohol. Reinecke also tested its action, and came to practically the same results.

The more recent investigations of Sarwey and Paul show that the results that may be obtained are quite on a par with the Ahlfeld method.

If the favourable action of green soap is to be studied, its composition should first be considered. Its active constitutents are, according to the above-mentioned formula, about ten parts of potash soap, forty-five parts of alcohol, and about the same of water in 100 parts. Its chemical action is partially due to the soap and partly to the alcohol. The loosening of the epidermis should not be taken into account, because, according to the above analysis, the liquid contains no free alkali, therefore it has no particular action in softening and detaching the epidermis as long as no water is added. Removal of the macroscopic dirt is quite possible, and may be accomplished by rubbing the hands with a piece of gauze

dipped in this soap. At the same time the alcohol aids the action of the soap by dissolving the fat, but a hardening action does not immediately take place, because the alcohol amounts to about a 50 per cent. concentration. At this strength, as I have already pointed out, is obtained the most beneficial action from alcohol, for the simple reason that it can develop considerable bactericidal power, while hardening of the skin does not take place, and, therefore, its action on the deeper layers of the skin is quite possible. Finally, after evaporation of the alcohol, a fine layer of soap remains on the skin, giving it a certain protection.

Although this is what has been claimed for the action of green soap, it must, however, be said that, as far as any bactericidal action is concerned, it is not superior to the ordinary hot water and alcohol disinfection; it is possessed of the same advantages and offers the same dangers. If this particular tincture of green soap is used for from five to eight minutes, hardening of the skin will take place, and its only advantage, as far as I can see, is the time saved, which in reality is not very much.

When tincture of green soap is used in conjunction with hot water and brush, the fat-dissolving property of the alcohol is made evident, and it cannot possibly produce any hardening of the epidermis on account of the large amount of hot water with which it is diluted. Consequently, its good qualities alone come into play.

The contact of an active disinfectant after mechanical cleansing should be as short as is consistent with proper sterilisation of the skin. The solution should possess a bactericidal action upon the vegetative, as well as the permanent, forms of bacteria, and must also attack those seated in a fat-containing medium, and must not only attack the surface, but also penetrate the deeper layers of the epidermis. It must also offer some guarantee that in a short time it will penetrate and moisten all the epidermic layers which have remained untouched by the mechanical cleansing, and it also must, as far as possible, kill the germs contained therein. Another requisite is that in accomplishing all this it must

not injure the cutaneous surface. To attain this end it has been suggested to use a 1 : 1000 sublimate solution containing 20 per cent. of alcohol. From the presence of the latter a more rapid and deeper penetration of the disinfectant is accomplished, and is not hindered by the dryness or fatty qualities of the skin, as will be the case if only using a watery solution of the antiseptic. The amount of alcohol contained is not enough to produce any hardening of the skin. At this dilution the alcohol naturally possesses little or no bactericidal action, but it is of considerable importance, as shown by the experiments of Krönig and Paul, inasmuch as the action of the sublimate solution is considerably increased.

We, therefore, possess in this combination an excellent procedure, and one which, I may say, may even satisfy the requisites of the laboratory to a certain extent. The method is rapid in action; it does not hurt the skin or render it slippery. The same solution may also be made replacing the sublimate by mercury cyanide. It is, however, quite certain that the sublimate or cyanide alcoholic solution will, after proper mechanical cleansing, penetrate the epidermis quite as deeply as any other known antiseptic, and so carry its bactericidal activity down to deeper layers.

Believing that a liquid disinfectant does not always reach the deeply seated saprophytes, various methods of sterilisation with antiseptic substances in the form of gas have been tried. The only material of this kind, however, is chlorine. Semmelweiss years ago obtained excellent results by using freshly-prepared lime water, and it was also favoured by Kümmell on account of its excellent action on the hands. In the procedure advocated by Weir it is used in the form of gas. Regarding the results of this method, however, very little has been said.

Potassium permanganate and oxalic acid have been highly extolled by Robb, Zweifel, Senger, and a host of other surgeons. Zweifel gives the following formula :—Pure hydrochloric acid, 45 cm. is added to 1600 cm. of water, to which 500 cm. of a 4 per cent. watery solution of potassium per-

manganate is added. The active principle in this solution is the chlorine as well as the acid of the permanganate, but the application of the oxalic acid solution which follows certainly does not play an unimportant part.

According to the investigations of Krönig and Paul, the disinfecting action of the various materials of oxidation is considerably increased by the addition of halogen hydracid, and thus in this solution the effect is obtained by the hydrochloric acid. The results reached by this method are probably quite as good as any other. It is, however, dirty, bulky to carry, and complicated.

The method of disinfection as perfected by Senger is based upon the action of three substances, each of which can develop bactericidal power and also enter into chemical combination with each other, and this combination in itself also possesses a bactericidal action. For this he used a solution of hydrochloric acid and potassium permanganate at a low percentage and sulphuric acid; the solutions are first heated because a more rapid combination will take place. The hydrochloric acid liberates chlorine by the action of the permanganate, while the surplus of the potassium manganetic acid liberates oxygen; the sulphuric acid combines with MnO_2 of the permanganate. The special action of these three chlorine bodies is the development of oxygen and sulphuric acid in a nascent state. Good results were obtained by this method, but naturally absolute sterilisation did not result, while it possesses the same disadvantages as the permanganate oxalic acid method.

Among those methods which tend to supply the skin with a covering in order to prevent contact with bacteria, that advised by Menges is deserving of particular attention. He disinfects his hands mechanically and chemically as usual, and then saturates them with 70 per cent. alcohol in order to harden the skin. They are then dried with a sterile towel, and then the sterile paraffin-xylol solution already referred to is poured over them. The xylol rapidly evaporates, so that a fine, smooth paraffin covering remains, which fills up all the depressions, and thus cuts off the bacteria from

access to the wound. There are, however, a number of disadvantages in this method. The covering is worn off very quickly during the ordinary manipulations occurring during an operation, and then the swelling of the shrunken skin resulting from contact with fluids takes place. Then, again, the covering prevents the evaporation of the water on the hands, and the secretion of sweat and that of the sebaceous glands is not prevented, so that at many points the covering is lifted up and bursts. Then, again, the procedure is rather expensive.

The sterile vaseline coating, as recommended by Bartlett, is of no practical use, so that it may be dismissed without any comment, but it may be said that the only coating which is possessed of any real value whatsoever is that recently recommended by Murphy, of Chicago—namely, a 5 per cent. solution of guttapercha in benzene.

When it had become known for a certainty that absolute sterilisation of the hands is an impossibility with any technique that has so far been advocated, the use of rubber gloves came into vogue. A good operating glove must fit the hand perfectly, and be of such a thickness that it does not interfere with the sense of touch. As I have already pointed out, the process of hand cleansing and disinfecting should be gone through with as if no gloves were to be worn, because at any moment during the operation they may be torn or pricked, and, consequently, if the hand has not been carefully treated, there is considerable danger of infection. One great advantage of rubber gloves is the prevention of infecting ligatures, because when tying, the deeper layers of the epidermis are not cut down upon by the ligature material, which in my opinion is one of the principal sources of stitch abscess when a perfectly aseptic material is used and tied with the bare hand.

Aside from skin infection one should always recall to mind the possibility of infection from the surgeon's mouth, as well as his assistants, and to protect against this the face and chin should always be completely covered with sterile gauze or a sterilised bag made for this purpose in such a way

that only sufficient space for the eyes remains between the protecting covering of the face and the cap. As Hübener's experiments show, a double layer of gauze is insufficient for the protection of the wound from the bacteria contained in the breath, and for this reason I have always employed a bag made of light cotton which covers the chin, throat and face completely, with the exception of the eyes, and by this device one may speak as much as is desirable during an operation.

The personal prophylaxis of the surgeon and his assistants cannot be under-rated, and they should carefully avoid auto-infection in every possible way. One should never allow his hands to come in contact with pus or septic wounds, and they should also be protected by rubber gloves when making rectal or vaginal examinations as well as those in the mouth and nasal cavities. The nails and skin should be kept in excellent condition, a thing which is practically impossible when the routine use of sublimate is made. Most antiseptic solutions rapidly deteriorate the skin and nails, thus rendering them extremely difficult to clean, and it is to avoid this unfortunate state of affairs that I have resorted to the use of mercury cyanide, combined with an alkaline salt.

SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

We are requested to call the attention of intending speakers at the XVIth International Medical Congress, to be held at Budapest, Hungary, from August 29 to September 4, 1909, to the fact that the manuscripts of their addresses should be despatched by the 28th of February, 1909, at latest, to the office of the Congress, VIII. Esterházy-utca 7, Budapest (Hungary). We would also remind them that the subscription to this scientific gathering is twenty-five crowns in Austro-Hungarian currency, which sum may be sent by Post Office Money Order to Professor Dr. de Elischer, Treasurer of the Congress, VIII. Esterházy-utca 7, Budapest. We regret that this notice did not reach us in time for its insertion in our number for February. Consequently, the warning in the first sentence is out of date.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Le Bacille de Koch est une Bactérie innocente se développant dans les cavernes tuberculeuses du poumon, des qu'elles ont communication avec une bronche, et pas l'agent pathogène de la tuberculose. Le virus tuberculeux est lié à la substance nécrosante de la cellule tuberculeuse en voie de dégénérescence et au protoplasme des cellules fraîches des tubercules gris. Par le Professeur Dr. H. W. Middendorp. Paris: A. Maloine. 1908. Pp. 32.

There is, perhaps, no generalisation in Medicine so universally accepted as that bacteria are a cause of disease, and no individual instance of this generalisation appears to be better proved than that the tubercle bacillus is the cause of tuberculosis. Dr. Middendorp, however, is not of this opinion. He denies absolutely the causal connection asserted to exist between tuberculosis and the tubercle bacillus, and believes that the bacilli are the result, and not the cause, of the tuberculous process. Some of our readers may remember that the late Dr. Haughton used to maintain a somewhat similar opinion in regard to bacteria in general: but he was, we believe, finally convinced of the truth of the current opinion. Dr. Middendorp's position is fully stated on the title-page of his thesis, and the letterpress adds little to our information concerning his views. He states that in numerous careful and exact examinations of tuberculous tissues he has been unable to demonstrate the presence of the tubercle bacillus except when the tuberculous focus communicates either directly with the external air or indirectly through some other focus which does so communicate. If this be a statement of fact one of the most important links in the chain of proof of the causal connec-

tion of Koch's bacillus with tuberculosis is broken, though it does not necessarily follow that the current opinion is erroneous.

All bacteriologists seem to be agreed in the difficulty at times of demonstrating the tubercle bacillus in tuberculous tissues: but there seems also to be an overwhelming mass of evidence from competent workers that this has been done again and again, and that, too, in cases where there is no evidence that the tubercle has ever directly or indirectly communicated with the external air. If this latter evidence is true, Dr. Middendorp's position becomes untenable, and bacteriologists may be excused from further consideration of his views. This would appear to be the conclusion generally adopted, for the greater part of the paper before us is taken up with a statement of the more or less abortive attempts which the author has made to get what he considers a satisfactory investigation of his views. The paper ends with an appeal to the bacteriologists at the recent Congress of Tuberculosis in America to either prove the doctrine of Koch or accept that of Dr. Middendorp.

A *Dictionary of Medical Treatment for Students and Junior Practitioners.* By Arthur Latham, M.D. Oxon.; Physician at St. George's Hospital. London: J. & A. Churchill. 1908. 8vo. Pp. 325.

We must admit to a strong dislike to books of this class, especially for the use of students. It has always seemed to us that what the student needs to learn is the principles of treatment, and if he does not learn these, cut and dry instructions as to methods only do harm. Of course, the possession of such a book as this does not prevent him from studying principles, but we fear that too often the methods are learned and the principles are forgotten or neglected. Of its class, however, Dr. Latham's book appears to be a good one, and much more prominence is given to general therapeutic measures than to the mere prescribing of drugs. On the whole, we are in accord with the advice given, though, as might be expected, we differ from it in

certain details. The book contains a valuable section dealing with vaccine therapy, and we are quite in agreement with Dr. Latham in his recommendation to gradually increase the dose with each injection. It is satisfactory to learn also that, in his experience, the method has been satisfactorily employed under the guidance of clinical symptoms, and that estimation of the opsonic index is not an essential. In conclusion, if books of this class are to be used we can heartily recommend Dr. Latham's, believing as we do that it contains sound teaching clearly expressed.

Vaccine Therapy and the Opsonic Method of Treatment. A Short Compendium for General Practitioners, Students, and others. By R. W. ALLEN, M.D., B.S. (Lond.); late Pathologist to the Royal Eye Hospital; late Gull Student of Pathology, Guy's Hospital. Second Edition. London: H. K. Lewis. 1908. Pp. xii + 244.

DR. ALLEN is to be congratulated on the fact that this little book has in less than a year reached its second edition. Useful as the first edition was to those who were then interested in the subject, the second edition will be found still more useful to the much larger number to whom the subject-matter at present appeals. The alteration in title from "The Opsonic Method of Treatment" to "Vaccine Therapy, &c.," is a decided improvement.

The book has been increased in size by almost one hundred pages, and in these nearly all the important papers published during the past year have been embodied. In dealing, however, on page 92, with "the value of the opsonic index as a guide to therapeutical immunization," some use might have been made of Matthews' admirable summary as published in the *Lancet* in September, 1908.

Also, considering that Bier's treatment is essentially an auto-inoculation treatment, one is disappointed in not getting some details of how it is best carried out and of its effects on the opsonic index.

In view of reports from America, and having regard also to the discussion on epidemic cerebro-spinal fever at the Sheffield meeting of the British Medical Association, it is scarcely correct to refer to "the complete failure of various varieties of anti-meningococci sera to influence the course of the disease during the recent epidemics at Belfast, &c." (See page 210.)

Bulloch's name is not always spelt correctly (see page 40); and "streptococca septicæmial," on page 43, furnishes further evidence of what is usually regarded as the activity of the "printer's devil."

Military Hygiene: A Manual of Sanitation for Soldiers. By R. H. Firth, Lt.-Col. Royal Army Medical Corps. London: J. & A. Churchill. 1908. 8vo. Pp. 299.

For many years it has been recognised as an abstract truth that nothing so much conduces to the inefficiency of an army as ill-health. Over and over again this truth has been demonstrated, but in the last great war in which our army was engaged in South Africa its neglect was as apparent as ever. Much thought and money were expended on the reorganisation of the Army Medical Service, but the gain did not seem to be commensurate with the expenditure. In South Africa, between the years 1889 and 1901, the admissions to hospital per 1,000 strength were for disease 746.0 and for wounds or injuries in action 34.0. These figures would seem to show conclusively that something more than a highly-organised medical corps is necessary to maintain a healthy army. What this something is we have learned from Japan, and at last the War Office has made a knowledge of sanitation compulsory for promotion to the rank of captain. Just as in civil life the enforcement of sanitary measures against the will of the people will be attended with little benefit to the public health, so in the army, without intelligent co-operation among all units, the medical corps can do little to prevent disease. It is quite useless to look for intelligent co-operation if the large majority of those who are to co-operate are without knowledge of the matter in

hand. The War Office has at last decided to remove this difficulty, and we look forward with confidence to the future. It is by no means easy to impart a useful general knowledge of any subject to those whose ordinary avocations prevent them ever attaining to more than a general knowledge, and for this reason we are glad that a teacher of the eminence of Colonel Firth has undertaken the task. Not only has he done it well, but he has done more than that, for he has shown to others the way they are to follow.

In the book before us he deals with the whole subject in a clear but masterly manner, giving just sufficient reason for his advice to ensure it being intelligently acted upon without burdening the reader with unnecessary details. The description of preventable diseases and the means for preventing them is admirable, but we would have wished that a little more space had been given to the subject of syphilis. Surely men ought to be taught those measures which appear to offer some protection from infection, and we should not be content with telling them that "the only true prevention or safeguard against this disease is abstention from immoral intercourse with women." To adopt scrupulous cleanliness and free washing is good advice, but the use of preventive ointments might well have been added. The book, however, is good and the teaching sound, and we feel confident that we may predict for it a large circulation. If it is read intelligently it can hardly fail to produce good results.

Operations on the Ear. By B. HEINE. Translated and Edited from the Second German Edition by W. LOMBARD MURPHY, M.A., M.B., B.C. (Cantab.): F.R.C.S.I., &c. London: Baillière, Tindall & Cox. 1908. Demy 8vo. Pp. xvi + 204.

IT is some time since a new text-book on the operative treatment of ear diseases has appeared, and this last book, though small, is worthy of a place with the classical works of von Bergmann, Macnen, and others. The arrangement of the chapters is good, and the descriptions are clear

though more might have been said of the operations for laying open the jugular fossa and the labyrinth. Much good work has been done on the latter in the last two years in England, and this has not been mentioned. The illustrations are hardly up to the standard of the text. Many good points are mentioned, and the writer's ideas are based on an endeavour to conserve as much as possible and not to advise the radical mastoid operation in the case of every ear the subject of chronic purulent discharge. The translator has done his share of the work well, and has succeeded in giving a readable English text without destroying the meaning of the original. Naturally, the book is of most use to those who specialise in ear work; but any surgeon who may have to face ear work would do well to have it near at hand, though it must be confessed that a good many of the descriptions presuppose special knowledge.

An Index of Treatment. By Various Writers. Edited by Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital, and Assistant Physician to the Hospital for Sick Children, Great Ormond Street; and H. Stanfield Collier, F.R.C.S., Surgeon to St. Mary's Hospital, Joint Lecturer on Surgery in St. Mary's Hospital Medical School; Surgeon to the Hospital for Sick Children, Great Ormond Street. Fourth Edition. Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. New York: William Wood & Co. 1908. 8vo. Pp. xv + 926.

The success of this work has been unqualified. The first edition was published in November, 1907; the second, with a few minor alterations, in January, 1908. The third edition, further revised, appeared three months later, in April; and this fourth edition, fully revised, was issued in November, 1908. The Editors may well "express their great satisfaction at the gratifying reception which it has met with hitherto."

In the number of this Journal for April, 1908 (Vol. CXXV., No. 436, Third Series, page 287), we favourably reviewed the first edition of this work at some length, and we strongly

recommended every medical practitioner to possess himself of the book without delay, and to consult it daily. The profession seems to have acted on this advice!

The present edition includes some new articles. Chief among these are papers on "Climatic Treatment" (under the heading "Health Resorts"), by Dr. Leonard Williams; "Hypnotism," by Dr. J. Milne Bramwell; "Prescribing," by Dr. Hutchison, one of the Editors; "Gunshot Wounds," by Mr. S. Maynard Smith; "Cut Throat," by Mr. James Sherren; and "Synovitis, Traumatic," by Mr. H. A. T. Fairbank.

We have one quarrel with the Editors—not a single contribution to a very comprehensive Index of Treatment comes from Ireland, and there is but one Irishman among the seventy-nine contributors—Dr. David Drummond, of Newcastle-on-Tyne—he was apparently mistaken for an Englishman, or perhaps for a Scotchman. It is to be hoped that so rigorous a boycott was not intentional.

Diseases of the Skin: an Outline of the Principles and Practice of Dermatology. By SIR MALCOLM MORRIS, K.C.V.O. New and Enlarged Edition, revised by the Author with the assistance of S. ERNEST DORE, M.D. (Cantab.), M.R.C.P. Cassell & Co., London, Paris, New York, Toronto and Melbourne. MCMVIII. Cr. 8vo. Pp. xv + 686.

THE history of this Manual of Skin Diseases speaks for itself. First published in 1893, it was reprinted in 1894. A second edition appeared in 1898, and was reprinted in the following year. A third edition was called for in 1903, and was reprinted in 1904. And now this fourth edition makes its appearance, enlarged by some forty-eight pages and enriched by a number of new plates, eight of them being printed in colours.

Sir Malcolm Morris has as a rule kept well abreast of progress in matters dermatological of late years. We were, therefore, not a little surprised to read, at page 414, under the heading "Furunculus orientalis (Delhi boil, Aleppo boil, Biskra button)" that "the particular parasite responsible for its production has not yet been identified." Surely the Leishman-Donovan bodies are now generally recognised to be the *causa causans* of the so-called "Oriental Sore"?

We can recommend Sir Malcolm's work as an excellent manual of skin diseases and their treatment. It may be studied with advantage by medical students and medical practitioners alike.

Legal Responsibility of the Drunkard. By H. Norman Barnett, F.R.C.S.: Surgeon, Cripples' Home Belfast; Author of "Drunkenness: Sin, or Disease?" &c. With an Introduction by Sir Andrew Reed, K.C.B. London: Baillière, Tindall & Cox. 1908. Pp. 64.

Beyond all question the legal treatment of drunkenness in this country is faulty in the extreme. A person arrested by the police for being drunk and disorderly is sentenced to pay a fine or sent to gaol for a short time. Neither of these modes of punishment is of the slightest use. The fine is without any effect, and enforced abstinence in gaol for a few weeks only leaves the drunkard, when he is discharged, with an undiminished, or even with an increased, thirst. Then, again, the law cannot interfere with drunkards unless they commit some criminal offence.

All this is most unsatisfactory. Drunkenness should be treated with a view to cure, and not merely punished or let alone. In his preface Sir Andrew Reed points out that in some other countries the laws relating to intemperance are very much superior to ours. In New South Wales, for example, if proof be given that a person is using alcohol to such an extent as to expose himself or his family to want, or seriously injure his health, an order is given in writing under the hand of the chairman, or two justices, sitting in a licensing court or petty sessions, forbidding all persons licensed to sell liquor from supplying such inebriate with any liquor for the space of one year, under a penalty not exceeding £10. Such an order may be renewed from year to year if, in the opinion of the justices who issue it, reformation has not taken place. While the order is in force no one is allowed to procure liquor for the drunkard under a penalty not exceeding £5 for every such offence. Such legal provisions are found to work well in Australia.

In this country, Dr. Barrett points out, it was not till 1898 that any really useful legislation on the question of drunkenness came into force. This legislation enacts that a prisoner must be guilty of a criminal offence before he can be committed to a State reformatory. It also enacts that if a prisoner be guilty of a scheduled offence, has been summarily convicted at least three times within the preceding year of a similar offence, is a habitual drunkard, and consents to be dealt with summarily, he is liable to a three-year sentence in a certified home. This Act needs amendment, so that a chronic drunkard *shall* be sentenced to treatment in a State reformatory whether guilty of a criminal offence or not.

In our opinion the law relating to private inebriate homes urgently needs to be altered. As it now stands the drunkard must sign a form stating that he or she voluntarily consents to be kept in the home for the specified time—six or twelve months. In our experience most drunkards refuse to sign any such form. It is greatly to be desired that a drunkard could be confined for, say, a year in such a home whether he consents or not. He is certainly a danger or source of loss to himself and to others, and deserves to be confined quite as much as if he were insane in the ordinary acceptance of the term.

We are in full accordance with Dr. Barnett's views as to the treatment of inebriates; but as regards the rest of the book about the mental state of drunkards, the signs or chronic inebriety and the responsibility of the drunkard, we fear it is too sketchy to be of much value.

The Care and Nursing of the Insane. By PERCY J. BAILY, M.B., C.M. Ed., Medical Superintendent of Hanwell Asylum. London: The Scientific Press, Ltd. Pp. 270.

THIS work is a reproduction of the course of lectures delivered to the staff of the Hanwell Asylum. It is very much on the same lines as the well-known handbook published by the Medico-Psychological Association, but is fuller, and goes more into detail. This applies especially to the parts on anatomy and physiology and on the nursing of the sick.

The book is well written and admirably adapted for the use of asylum attendants. The explanations are full and

easily understood, and the illustrations are instructive. Our only criticism is that sometimes it becomes, we think, a little too technical. Attendants need hardly be familiar with the term "the helus of the kidney." "Phosphates and sulphates of potassium and sodium" will certainly need dilution before they can be digested; the "lumen" of a hypodermic needle will sound mysterious to most attendants; and we think that, even after studying the pages on the connection between visual, auditory, intellectual and motor speed centres, most of Dr. Baily's readers will consider that the subject is one hard to be understood.

Sláinte. The Journal of the Women's National Health Association of Ireland. Edited by the Countess of Aberdeen. Vol. I. No. 1. January, 1909. Second Edition. Pp. 18. Dublin: Maunsel & Co.

It would be indeed ungenerous on our part as medical writers not to extend to this new Health Journal a very hearty welcome. We wish *Sláinte* every success and a long and prosperous career—*Céad mile failte*. In the pages of the number of the Journal which lies before us will be found a most suggestive article by Dr. Joseph H. Pratt, of Boston, U.S.A., on the "Results Obtained in the Home Treatment of Pulmonary Tuberculosis by the Class Method." This paper was read in the Section of Medicine at the annual meeting of the British Medical Association, held last July at Sheffield, and has been reprinted, by permission, from the *British Medical Journal*.

An address delivered by T. Clarke, LL.D., at the first annual meeting of the Dublin Branch of the Women's National Health Association follows. It deals with the question of what that Association can do to advance the cause of School Hygiene.

Mrs. Campbell, Hon. Sec. of the Infantile Mortality Sub-Committee of the Belfast Branch of the Women's Health Association, contributes an account of the "Babies' Clubs" of Belfast.

All the above articles are worth reading.

Sláinte is printed and published in Dublin. Its pages are freely illustrated, and it appears in a neat paper cover of St. Patrick's blue. *Sláinte's* "Curtsey to the Friends who are Waiting for Her" is from the Editor's pen. It will be read with sympathetic interest by Irishmen and Irishwomen all the world over.

Diseases of the Breast, with Special Reference to Cancer. By WILLIAM L. RODMAN, M.D., LL.D.; Professor of Surgery in the Medico-Chirurgical College of Philadelphia; Professor of Surgery in the Woman's Medical College of Pennsylvania; Surgeon to the Medico-Chirurgical Hospital, the Woman's College Hospital, the Philadelphia General Hospital, the Jewish Hospital, and to the Presbyterian Hospital; Fellow of the American Surgical Association; Membre de la Société Internationale de Chirurgie &c., &c. With Sixty-nine Plates, Twelve in Colours, and Forty-two other Illustrations. London: Sidney Appleton. 1908. Pp. 385.

THE work before us is the result of the author's experience of a quarter of a century. To anyone acquainted with the type of man Professor Rodman is it is unnecessary to say the work is one of the most valuable contributions to surgery we have had for years. The advances that have been made both in connection with the pathology and surgery of the breast and more especially in connection with malignant disease, during the past few years, made a work of the nature of that under review absolutely necessary. There is no one more fitted to produce an authoritative work on the subject than the distinguished author of the present treatise. Every subject in connection with the mammary glands is ably and comprehensively described; but, as the title of the book indicates, most attention is devoted to the subject of malignant disease. Including sarcoma, which occupies some 12 pages, 220 pages are devoted to a consideration of malignant disease, its diagnosis, pathology and treatment. Full justice is given to Mr. Sampson Handley's beautiful and far-reaching work in connection with the spread of breast cancer by lymphatic permeation. In connection with the operative treatment of mammary cancer the author again pays a tribute

no less well merited to the work of the late Sir W. Mitchell Banks, Gross, Halsted, Stiles, Lord Lister, and W. Sampson Handley.

In a review of a work of this kind it is unnecessary for us to do more than direct attention to the nature of the work. It is beyond criticism, save that of a complimentary form. The work is such as we should expect from one of Professor Rodman's reputation—it is eminently practical, it is clear, it is concise, it is authoritative, and it is beautifully written. In this last respect what a contrast it is to many of the volumes from the pens of the Americans we daily see put on the market!

Bier's Hyperæmic Treatment in Surgery, Medicine and the Specialties: A Manual of its Practical Application. By Willy Meyer, M.D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital, Attending Surgeon to the General Hospital, Consulting Surgeon to the New York Skin and Cancer Hospital and to the New York Infirmary; and Professor Dr. Victor Schmieden, Assistant to Professor Bier, University of Berlin, Germany. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1908. Pp. 209.

The manual before us is concise, yet comprehensive, and fills a much-needed want felt by general practitioners and surgeons alike. There was a general want of familiarity on the part of the profession as to the practical details in the application of Bier's principles of hyperæmic treatment, as well as a more or less general ignorance of the various conditions to which hyperæmic treatment was applicable. Quite recently, however, the journals, both weekly and monthly, have been flooded with articles on the subject of hyperæmic treatment in its application to acute as well as chronic conditions. The profession can no longer have any excuse to offer if they remain ignorant of every detail of the subject. The manual under review is the most authoritative pronouncement one could desire upon the subject. The descriptions of the application of the principles to the various conditions are admirably illustrated, and both "active" and "passive" hyperæmia

are described. No good purpose would be served by entering upon a discussion as to how the good effects of Bier's methods of treatment are produced. To us, however, it would appear as if the good effects may be attributed to a flooding of the infected area with blood and fluid exudations rich in opsonins.

The book is one we can cordially commend to the study of the profession generally.

Common Affections of the Liver. By W. Hale White, M.D., F.R.C.P.; Senior Physician to, and Lecturer on Medicine at, Guy's Hospital. London: James Nisbet & Co., Ltd., 22 Berners Street, W. 1908. Cr. 8vo. Pp. viii + 302.

It has not often been our good fortune to read so charming a book as Dr. Hale White's "Common Affections of the Liver." The volume is one of a series entitled "Nisbet's Modern Clinics," and very appropriately the author treats the subject of diseases of the liver from the clinical side. The book represents clinical teaching. "The rarer conditions are only mentioned briefly, the excessively unusual are omitted altogether. It is intended for students beginning their work, and not for those who have extensive clinical knowledge"—so writes Dr. Hale White in his very short preface. Yet we make bold to say that few medical practitioners—no matter how senior their standing—will fail to draw a fund of valuable information from a perusal of the pages of the book.

In an introductory chapter the author concerns himself with anatomical considerations. Hepatoptosis or Wandering Liver are terms which "may be applied to a liver which, being unduly displaceable, leaves its normal position and forms an abdominal tumour"—but where in the world did the author get the word "Hepatopsis," which forms the heading of the second chapter or lecture? The author's Greek seems very defective, for, besides the misspelling "hepatopsis," we find "empyæma" *passim*, "xanthalasma" (page 23, but correctly "xanthelasma" on page 34), "aneurism" (page 28), and "anastomes" (page 133 and elsewhere).

Speaking of suppuration within the liver, Dr. Hale White points out that the pus-producing micro-organisms may be conveyed to the liver by the bile passages or by the hepatic

artery, but much more commonly by the portal vein; the case is then one of portal pyæmia. He goes on to say (page 77): "The source of infection is at the periphery of the portal vein; the micro-organisms are conveyed from there to the liver, where they set up a number of small abscesses at the termination of the radicles of the portal vein; often at the same time there are patches of necrotic liver tissue, and the intrahepatic radicles of the portal vein are thrombosed." Surely, the correct term to use in this sentence would be "terminals" not "radicles"? "Echnococcus" (page 280), though several times repeated, is almost certainly a printer's error.

Hostile criticism of the book is exhausted in the foregoing paragraphs. We are sure the slips we have pointed out will be corrected in the second edition. We have read these clinical lectures—for such they are—with pleasure and profit. It would be hard to single out any one lecture for special praise, but we have never met with a clearer description of hydatid disease of the liver than that which occupies some twenty-four pages—from 259 to 283.

In conclusion, we advise every student of medicine to add this work to his library of text-books, and to study its pages in the truest sense.

Doctors. An Address delivered to the Students of the Medical School of the Middlesex Hospital, 1st October, 1908. By Rudyard Kipling. Macmillan & Co. 1908. Pp. 31.

A generous and characteristic tribute to the Medical Profession and its members—present and to come. The Address itself is quite short, occupying only eight and a half pages of the thirty-one which make up the booklet. As an Introduction, Mr. Reginald Lucas, Member of the Board of Management of the Middlesex Hospital, gives an interesting account of the history of that institution. Then follows Oliver Wendell Holmes's poem entitled "The Two Armies"—the one bears upon a crimson scroll, "Our glory is to slay"; the other's banners bear the single line, "Our duty is to save."

But the Address is *the* thing—"In all times of flood, fire, famine, plague, pestilence, battle, murder, or sudden death,

it will be required of you that you report for duty at once, go on duty at once, and remain on duty until your strength fails you or your conscience relieves you, whichever may be the longer period. This is your position. These are some of your obligations." . . . "Realising these things, as I have had good reason to realise them, I do not think I need stretch your patience by talking to you about the high ideals and the lofty ethics of a profession which exacts from its followers the largest responsibility and the highest death-rate—for its practitioners—of any profession in the world. If you will let me, I will wish you in your future what all men desire—enough work to do, and strength enough to do your work."

Practical Medicine Series, 1908. Under the general Editorial Charge of GUSTAVUS P. HEAD, M.D.; Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume IV. Gynæcology. Edited by EMILIUS C. DUDLEY, A.M., M.D., Professor of Gynæcology, North-western University Medical School, Gynæcologist to St. Luke's and Wesley Hospitals, Chicago; and C. VON BACHELLÉ, M.S., M.D., Assistant Professor of Obstetrics, Chicago Polyclinic and College of Physicians and Surgeons, Gynæcologist to the German Hospital, Chicago. With Twenty-six Plates and Twelve Figures. Pp. 227. Volume V. Obstetrics. Edited by JOSEPH B. DE LEE, A.M., M.D.; Professor of Obstetrics North-western University Medical School. With the collaboration of HERBERT M. STOWE, M.D. With Sixteen Plates. Pp. 222. Chicago: The Year Book Publishers.

THESE are two volumes of the Medical Series for 1908, comprising ten volumes on the year's progress in Medicine and Surgery. They are composed of extracts from a large number of the papers, &c., published during the year 1907 and the first half of 1908 in the journals of America, Great Britain, Germany and France, and thus furnish a useful collection of up-to-date views on current topics and subjects which are still *sub judice* in the minds of the medical profession.

The number of subjects referred to is very large, and it

would be therefore quite impossible to attempt a critical review of the subject-matter of the books. Some of the extracts would be better had they been a little more extended.

The compiling of the volumes is decidedly faulty. Volume V., Obstetrics, simply abounds with errors due to defective proof correction. In several places paragraphs end in the middle of a sentence or word, and the end of the sentence is found dropped into the middle of another sentence half a page further on, or even further back, if found at all.

Volume IV., Gynæcology, is not quite so full of these errors, but four of the plates have descriptive text of other plates printed under them.

On the whole, the volumes are useful as a means of reference to recent literature on special subjects, and will assist the medical practitioner in keeping up with the times and acquiring knowledge of the most recent views and suggestions for treatment where otherwise he would not have time to read the enormous amount of literature published every month or week in all civilised countries.

Handbook for Attendants on the Insane. Fifth Edition. London: Baillière, Tindall & Cox. 1908. Cr. 8vo. Pp. xvi + 390.

This is the fifth edition of the official handbook issued by the Medico-Psychological Association to asylum nurses preparing for the certificate of proficiency in mental nursing granted by the association. It has appeared none too soon, as the older edition had many defects, and, although of great use in the education of asylum workers, had long since needed revision. Like most up-to-date treatises on nursing, it deals with many matters hitherto regarded as belonging solely to the medical text-book, alone intended for the guidance of physicians and surgeons.

The illustrations and diagrams are good, and—especially those demonstrating the osteology of the skull—ought to be of much help to persons for the first time studying elementary human anatomy.

The pages devoted to the description and comparative strengths of the antiseptics in common use are clearer and

more workable. The tables of questions attached to the end of the chapters of the old handbook are omitted in the present work, which is yet larger both in size and in price than its predecessor.

Whilst fully recognising the difficulty of writing a simple book dealing with a most abstruse subject, a handbook capable of being understood by persons (often possessed of the merest rudiments of elementary education), one cannot but think that the authors of the present work have written somewhat over the heads of the average candidates for the nursing certificate of the Association. One would have liked less pathology and more stress laid upon the constant watchfulness and forethought required to prevent the accidents, suicides, escapes, &c., which must be constantly guarded against in asylums. A description and illustration of the neuron, with its axon and dendrites, examples of chromatolysis of nerve cells, are very interesting, but we venture to suggest that some diagrams of the "acarus scabiei" and other skin and intestinal parasites would be of more practical interest to persons entrusted with the care and supervision of insane pauper communities, always liable to parasitic skin affections.

Asylum attendants, be it remembered, enter upon their duties with little or no previous hospital training and often with little, if any, realisation of their great responsibilities, and the present handbook, intended for their use, whilst inculcating a very high moral and "altruistic" mindedness in asylum nurses, fails to place these responsibilities and some simple cardinal asylum virtues in as prominent a position as might have been wished.

In a similar work, intended for the guidance of attendants upon the insane, of much less pretentious dimensions, one is at once struck by the concise forcefulness with which the risks of asylum treatment are put forward. The care and safe-keeping of the insane is the primary object in asylum nursing, in the interests of both the patient and the institution where he is being treated, and one would like to see more stress laid upon the necessity for constant supervision, and examples given where failure in this has produced fatal accidents, rather than to diagrams of cortical cellular changes and *Golgi* brain preparations.

It is to be hoped that the standard of knowledge which the present edition is to lead up to will be attained by asylum nurses and will not be purchased at the cost of unwarranted self-sufficiency on the part of mental nurses, and especially those solely entrusted with the custody and care of the insane outside of mental hospitals and asylums.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Edited by J. W. Ballantyne, M.D., F.R.C.P.E. Vol. X. Thiersch-Zymotic. Edinburgh and London: William Green & Sons. 1909. Pp. xii + 609.

With this tenth volume Green's *Encyclopedia and Dictionary of Medicine and Surgery* is completed and concluded. The present volume carries the subject-headings from "Thiersch's Method" to "Zymotic." It carries 1,059 subject-headings, among which are sixty-four articles of more than one thousand words in length, fifty-four are of medium size of not less than ten lines in length—and 941 are short paragraphs, chiefly definitions, of less than ten lines. Among the long articles are contributions on the Uterus, Pathological Changes in the Urine, Tuberculosis, the Wrist-joint, Whooping Cough, Yellow Fever, Toxicology, Dangerous Trades, Tropical Fever, Typhus, Typhoid, Vaccination, Ventilation and Warming, Fields of Vision, Venereal Disease, Wounds, X-Rays, and Yaws.

It is interesting to note that the ten volumes which form "Green's Encyclopedia and Dictionary" contain 11,843 articles. The long articles which represent the "Encyclopædia" (as we prefer to spell the word) number 609, while the subject-headings which represent the "Dictionary" amount to 10,366.

The Editor informs us that a promised supplemental or periodic volume, called the *Quinquennium of Medicine and Surgery*, is in active preparation, and will be published within the next few months. It will contain an account of the additions which have been made to our knowledge of Medicine, Surgery, and Midwifery during the past five years.

It only remains for us to congratulate the Editor on the completion of his undertaking, and on the admirable way in which he has discharged his editorial duties.

Transactions of the Tenth Annual Meeting of the American Proctologic Society, held at Chicago, Ill., June 1, 2, 1908. 8vo. Pp. 146.

We have received the "Transactions of the Tenth Annual Meeting of the American Proctologic Society," held at Chicago in June, 1908. No very important advances in rectal surgery appear to have been brought forward at the meeting, and we cannot help feeling rather surprised that a good deal of time was devoted to a discussion on "Galvanism in the Treatment of Hæmorrhoids"—a method of treatment very properly described by one of the speakers as unsurgical and unscientific.

Two cases of primary melanotic sarcoma of the rectum and anus are reported by Dr. Krouse of Cincinnati, and a full account of the literature of the subject is given, making the total of sixty cases of this rare condition.

An account is given of the recent work on the physiology of the rectum by Dr. Earle, of Baltimore, and the following conclusions are drawn from the results of various experiments:—"That the properties of the external sphincter resemble those of plain muscle; that the anus closes by permanent tonus of the two sphincters independent of the will, but this is supplemented by voluntary control; that the tonus practically disappears after section of the nervi erigentes, proving thereby that the closure depends upon the constant expenditure of nervous energy and not upon the elasticity of the muscle and arrangement of its fibres. That there are constrictor and dilator fibres to the internal sphincter, which can be stimulated reflexly through the spinal cord, proving a reflex centre in the lower part of the cord; that through this centre, either reflexly or voluntarily, the internal sphincter can be dilated, or constricted, and the external sphincter can be inhibited."

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny, M.D., F.R.C.P.I.
General Secretary—James Craig, M.D., F.R.C.P.I.

SECTION OF OBSTETRICS.

President—E. Hastings Tweedy, F.R.C.P.I.
Sectional Secretary—Henry Jellett, M.D., F.R.C.P.I.

Friday, December 11, 1908.

The President in the Chair.

Exhibits.

A Modification of Bandl's Hollow Sound.

Dr. Wilson exhibited a modification of Bandl's hollow sound, which did away with the difficulty in the mechanical cleaning of the instrument.

The President considered the exhibit a great improvement on any other Bandl's sound that he had seen.

Dr. FitzGibbon thought the instrument as modified would much more serviceably carry and apply whatever fluid was used.

Dr. Ashe said he had tried the instrument on two hundred women last year, and found it of use.

Dr. Wilson replied.

Hypernephroma.

Dr. Tweedy exhibited a specimen of the above.

A. M., aged fifty-seven, widow; 15-para: last pregnancy thirteen years ago.

History.—Has noticed tumour in side for three years; increased latterly in size.

Physical Signs.—A large cystic tumour, very fixed, extending

on left side from pubic brim to kidney region. A cord-like mass felt through rectum was diagnosticated as ovarian pedicle, and a diagnosis of probable ovarian cyst was made. On opening the abdomen a large retro-peritoneal cyst came into view. The great omentum surrounded it on all sides. Numerous adhesions to intestines. The omentum was with difficulty separated, and enormous vessels were tied. During the process the tumour ruptured, and about two pints of pus escaped. The pedicle was reached, and the tumour was discovered to be renal in origin. Pedicle was secured with catgut, and the ureter divided and stitched into abdominal wall. A gauze wick was inserted to provide an escape for oozing. Uninterrupted recovery.

Hypernephroma was a somewhat rare tumour. The first case in which a kidney was removed, a diagnosis of ovarian cyst having been made, was by the late Mr. Lawson Tait, and everyone was amazed at his statement that he believed it was an ovarian tumour until the pathologist told him it was a kidney.

Tumours from a Case of Recurrent Fibroids.

Dr. Tweedy also showed these specimens.

Feb. 17, 1908.—M. A., aged seventy-one.

History.—For past two years has bled on and off. In June, 1907, bleeding got worse, and has continued ever since. Lately has become more of a discharge.

Physical Signs.—Sloughing polypus protruding from vagina.

Operation.—Large amount of sloughing material taken away by vagina.

Pathological Reports—Macroscopic.—(1) White, rough mass, size of hazel nut; myoma or malignant. (2) White friable masses; necrosed myomata. (3) Torn masses of fibroids; purulent exudate. *Microscopic.*—(1) Highly cellular tissue, with blood vessels. Cells show some irregularity in size, but are not decidedly malignant. (2) Necrotic myoma.

Nov. 10, 1908.—*Complaint.*—Passing fleshy-looking masses by vagina from time to time.

Physical Signs.—Broad pedicled polypus attached to anterior tip of cervix.

Diagnosis.—Polypus; malignant?

Operation.—Amputation by vagina.

Pathological Report—Macroscopic.—Soft friable masses.

Microscopic.—Necrosed fibrous and muscle tissue.

This tumour was found in the vagina of a lady, aged seventy-one. She had come to him ten years ago, stating that the late Dr. Mason had removed a number of myomas from her. She at this time suffered from a vaginal polypus, which came away without operative help. At intervals since this she had returned to him bringing myomas which had passed from her. In May last he removed an enormous sloughing mass, which Dr. Rowlette said was possibly malignant, though he was inclined to think it was a myoma. She went away in good health, but came back about a fortnight ago very ill, when he removed a similar mass. Again Dr. Rowlette reported it to be a myoma. The woman's uterus was not bigger than a shut thumb, and there was no myoma in it, so far as he could now ascertain.

Dr. Rowlette said he had seen two or three hypernephromas shown by others. The tumour was usually situated apparently in the kidney, and was supposed to originate from the adrenal body. The structural connection was not at all clear in most cases, but, from the histology of the tumour, it more closely resembled, where the type was well retained, the structure of the adrenal body than the kidney itself. Degeneration was fairly common in the tumour, but in the few instances that he had seen he had not observed so much degeneration as in the case before them. Microscopically the material resembled pus, though they were unable to isolate any micro-organism. It was difficult to obtain good microscopic sections in the case of the recurrent fibroids, as the material from the tumours was always necrotic or semi-necrotic, but he could come to no other opinion than that it was necrosed fibro-muscular tissue. He found nothing to suggest any malignant change.

Dr. Purefoy recalled cases in his own experience showing that what appeared to be an ovarian cyst might prove to be renal. He also had had the experience of repeatedly removing a large sloughing mass, which was apparently ordinary fibro-myoma. He thought it was only after the third operation that they discovered evidence of sarcoma. Ultimately he performed hysterectomy, but the patient did not recover.

The President, in reply, said the patient was never in a condition that would enable him to remove the uterus. She never came to him until she was at the point of death. His object then was to remove the mass at once, and he was always convinced that it was the last time he would see her.

Papers.

Intermenstrual Pain.

Dr. R. D. Purefoy read a paper on intermenstrual pain. One of the least common and least understood varieties of pain connected with and dependent on menstruation was that to which Priestley in 1872 applied the term "intermenstrual." Medical literature furnished us with but scanty records of such cases, and details as to treatment and its results had been seldom furnished. It often proved rebellious to treatment, and showed marked liability to recurrence. It was generally met with between the ages of twenty-five and thirty-five, and was commonest in sterile women or those who have not been recently pregnant. Some writers had described the pain as paroxysmal and sudden in occurrence and severe in degree; and many attributed it to the condition known as hydrosalpinx. Dr. Purefoy was unable to agree with those statements as to the nature of the pain and its causation. In the most typical cases there was but little discoverable disease of the uterus and appendages, and in only a few cases was it associated with such watery discharge as might be attributed to leakage from a hydrosalpinx. Treatment should be constitutional to improve the general health and local if disease of the uterus or appendages can be detected.

Some Remarks on Intermenstrual Pain.

A paper on the above subject, by Dr. Spencer Sheill, was read by Dr. FitzGibbon.

Dr. Wilson thought that where there were evident local lesions, which could be corrected, with the result that the pain ceased, it hardly came under the head of intermenstrual pain; neither did cases in which congestion of the ovaries was relieved by the loss of blood at the period. The difficulty of treating cases of pain that came on a definite number of days after a menstrual period, and ceased a definite number of days before a period, was very great, and although the drugs mentioned might give relief, it was a matter of considerable doubt as to what the condition really was.

Dr. Ashe thought the condition was probably due to some form of toxæmia arising from an excess of internal secretion of the ovary.

Dr. Neill said that salicylate of menthol had recently been advised for relief of pain.

Dr. FitzGibbon said that in speaking of intermenstrual pain

there was a tendency to mix up a variety of different diseases. They should keep in mind that the pain should be one which occurred at a fixed time between the periods, and in which there was no definite organic disease. The ignorance which existed as to ovulation made it difficult to say certainly that it was congestion of the ovary that caused the pain, but he expected that Dr. Sheill's suggestion of circulatory treatment would improve the condition.

Dr. Katherine Maguire said she did not find the condition common in an excessive degree. She found aspirin rather a dangerous drug, as far as its gastric symptoms were concerned, though it certainly relieved pain. She found phenacetin to do good. If ammonol or antikamnia was given, they should be given after food, and with tea or coffee, which neutralised their effects. She regarded both drugs as dangerous because they were compounds of antifebrin.

The President said that women suffered from constipation and congestion of the pelvic organs, and he believed that this congestion would be relieved by free purging better than by the drugs mentioned. He thought that in most cases, not due to constipation or neurasthenia, they would find some disease of the tubes which might give no evidence of their condition to the examining finger.

Dr. Purefoy, in reply, said he agreed with Dr. FitzGibbon's limitation of cases, but such typical cases were rare. He was very sparing in his prescription of drugs, and considered that anything like repeated use of the coal-tar remedies was greatly to be deprecated.

SECTION OF PATHOLOGY.

President—A. R. Parsons, M.D., F.R.C.P.I.

Sectional Secretary—Professor White, R.C.S.I.

Friday, December 18, 1908.

The President in the Chair.

Pernicious Anæmia.

The President read the following notes on the clinical history of a case of pernicious anæmia:—A. B., aged forty-five, formerly a fireman on board a cross-channel steamer, came to the Extern Dispensary of the Royal City of Dublin Hospital on 10th September, 1908, suffering from weakness and shortness of

breath. His appearance was so suggestive of serious illness that he was admitted to the medical ward. On inquiry he stated that four or five months ago he had an attack of influenza, and he attributed the onset of his present illness to starting work too soon, because shortly after resuming work he felt a throbbing in his head, and he felt sick till he sat down. A little later he got headache, palpitation of the heart, and weakness in his legs. In spite of these symptoms he continued at work for five weeks, though he felt as if he had a rope across his chest and abdomen, and as if his head were bursting. He remained at home for ten weeks, but as he was making no progress he came to the hospital.

Previous History.—He always enjoyed good health, and had been in the employment of his present company for thirty-five or thirty-six years. Till one year ago he acted as fireman; more recently he has acted as a collier.

Family History.—Both parents died aged about sixty years. The father succumbed to a paralytic stroke, and the mother to an unknown cause. They had eight children, all of whom were alive except one boy, who succumbed to an accident.

The patient was twenty-one years married. He had only one child, which died at birth.

Personal Habits.—He chewed or smoked three to four ounces of tobacco weekly. As regards alcohol, he was never a heavy drinker, and for the past three years had taken only an occasional glass of porter. He took tea at every meal; he has always had a liberal supply of good food.

On Inspection.—He has abundant black hair, but the face is pale and sallow-looking. The lips and mucous membrane of the mouth are very pale, almost the colour of the skin; the teeth are carious in part and covered with tartar; the ears are white. The paniculus adiposus is slight, but he has not wasted. The nails are white. Veins over back of hand were not visible. Neck showed marked pulsation; a gland on each side was palpable. Thorax was normal, except for a systolic murmur audible over the mitral, aortic and pulmonary areas. There was no tenderness on percussion over the sternum. Abdomen.—The liver was quite normal; the spleen not palpable; and a general examination disclosed nothing pathological. Lower Extremities.—Slight œdema of the ankles; a few cicatrices over the front of each tibia, probably traumatic in origin. The knee jerks are easily elicited. There is no tenderness on pressure over the calves or the tibiæ;

the inguinal glands are just palpable. He has frequently had oozing of blood-stained fluid from his gums, and the bowels are usually constipated. The urine had a specific gravity of 1015; was acid in reaction. It contained neither albumen, sugar, acetone nor diacetic acid, and only a very small quantity of indican. On admission the temperature was 98°, and continued in or about normal for a fortnight after. The pulse during the same period varied from 96 to 108.

Blood.—Shortly after his admission smear preparations were made by the Resident, Mr. Medcalfe, which showed definite poikilocytosis, and such an increase in the white blood cells as to attract his special attention. No other changes were detectable at this stage in the red blood cells. On the 25th September a blood count was made, and showed Hg. 20 per cent., red blood cells 1,150,000, colour index ·8. Poikilocytosis was still present. I did not detect any nucleated red blood cells, but with some searching Dr. O'Sullivan found a few normoblasts.

Subsequent History.—In spite of all we could do the course of the disease, even during the first fortnight, was steadily downwards. He complained of some pain in his right ear, and on 26th September pus escaped freely from the external ear. His temperature rose to 101° F., the pulse to 120. He became stupid and heavy; his temperature rose to 103° F.: he had a sharp attack of epistaxis. On the 6th October he seemed to be a shade better, but on the morning of the 7th October he got a profuse epistaxis, and died shortly afterwards. A couple of days before his death several blood films were made, which were of exceptional interest, especially in comparison with those made previously, and I asked Dr. O'Sullivan if he would be good enough to make the *post-mortem* examination. The clinical diagnosis was pernicious anæmia.

Professor O'Sullivan said that the appearance of the organs at the *post-mortem* examination was similar to that found in pernicious anæmia, with secondary septic infection. The heart showed well-marked tabby-cat striation, and the liver contained a large quantity of iron pigment. The bone marrow also suggested pernicious anæmia. The blood was remarkable and unusual. The earlier specimens showed a definite polymorphonuclear leucocytosis and poikilocytosis, with very few nucleated red blood cells. The blood films, made some days before, as well as those made after death, on the contrary, contained large

numbers of nucleated red cells, and a great increase in the number of the white cells. Among the latter were numerous myelocytes. Briefly, the appearance of the organs suggested pernicious anæmia; but the blood removed some days before death was much more like myelogenous leukæmia than pernicious anæmia.

Dr. J. Magee Finny thought the condition during life pointed rather to leukæmia than to pernicious anæmia. Every addition that could be made to their knowledge on the subject was most interesting. In a case which he published many years ago, the iron stain was found also in the kidneys.

Dr. Moorhead quoted two cases as showing that there must be a large number of cases of pernicious anæmia in which the nucleated cells suddenly burst out into the blood in the last days of life, and more particularly when any acute infection occurred.

Dr. Travers Smith said that if the man's illness could be traced to mastoid disease, or if the original source of the septic infection was in the middle ear, there would be no necessity to explain the matter as pernicious leukæmia or anæmia. An elevation of temperature was not necessary in order to develop a leucocytosis. The nucleated red cells were not numerous, and possibly they and the myelocytes that appeared were compensatory to the marked hæmolysis that was evidently going on.

Dr. Boxwell referred to a case in which it occurred to him that the anæmia was due to a parasitic infection. The patient did not improve on treatment with arsenic. After two months he suddenly got much better, and he left hospital with about 65 per cent. of red cells, and hæmoglobin considerably over. In a second case he found a number of things in the blood of which he was not sure. They were like either lymphocytes or loose nuclei. In a third case—of a woman who got well, but returned to hospital and died—the *post-mortem* showed uniformly fatty organs, with iron stain in liver, spleen and kidneys. They all had bad teeth, and the second case had an extremely septic condition in his mouth.

The President, in reply, said the case presented, from a clinical point of view, what he would call the typical aspect of pernicious anæmia. The man had no trouble from his ears or mastoid cells. There were no ear symptoms whatever until fourteen days after admission to hospital, and he believed the infection occurred while in hospital. The case might, perhaps, be put into the ill-defined group called leukanæmia, but the weight of evidence was in favour of pernicious anæmia.

Professor O'Sullivan, in reply, said that in thick parts of a preparation the cells sometimes became shrunken in the slow-drying, and it often became impossible to distinguish between a lymphocyte and a nucleated red cell. The difficulty did not occur in a thin preparation. There was no naked-eye appearance of iron in the kidneys.

Tuberculosis of Lungs, with Tuberculous Tumour in Cerebellum.

Dr. O'Carroll read notes of a case of above in a girl of nineteen, who was admitted to the Whitworth Hospital on May 12. From Christmas, 1907, she began to have dimness of sight, and later complained of occipital headache and vomiting. Her sight became worse. There was no relation between the vomiting and food. The tongue was protruded slightly to the right. There was no marked difference in the expression of the two sides of the face. She was quite intelligent; her speech was slow and slightly slurring. There was no discharge from the ears. Both knee jerks were well marked. There was no actual wasting of flesh, and the menstrual function was right. She improved very much in hospital; but in October, during his absence from town, she complained of headache, and had bleeding from the nose. Her temperature rose; she became somewhat comatose; and lumbar puncture was performed on November 9, about thirty cubic centimetres of fluid being withdrawn. She improved a little for a few hours, but died on November 16, after several days in a state of coma.

Dr. Purser said that during the performance of lumbar puncture she shrieked with headache, but it ceased in about ten minutes. At the *post-mortem* the only organs showing disease were the cerebellum and the lungs. He was aware that the upper lobe of the right lung was consolidated, but he was not aware of anything being wrong with the left lung. In it, however, they found an enormously thickened pleura, and the whole lung was riddled with cavities. It was most remarkable that with such extensive disease of both lungs there should be so little symptoms. The patient at no time had any cough.

Specimens from a Case of Rickets.

Dr. Purser exhibited specimens of a case of rickets from a child, aged fourteen months, who had been suffering from measles, and had died from bronchial pneumonia following

measles. There were marked symptoms of rickets in the wrists, ribs, and cranium. It was rather unusual to see the changes in the ribs, and still more so in the skull, which showed enormous thickening of the parietal bones.

Carcinoma of Stomach and Liver.

Dr. Earl showed specimens of carcinoma of the stomach and liver taken from a woman who had been in hospital only a few hours. At *post-mortem* the liver was found very much enlarged, and it contained so many nodules of cancer that at first sight it looked somewhat different from the ordinary secondary cancer of the liver. He found in the stomach an ulcer, which lay on the posterior wall over the pancreas. Part of the edge of the ulcer was sharply cut and terraced. He could find no other cancer in the body as a primary cause.

Dr. Travers Smith said the woman was aged thirty-six. She complained of violent pains in her epigastrium, which had come on two days previously, but before that she had had no stomach symptoms. She had taken a considerable quantity of alcohol, but there was no ascites present. He examined her for a primary carcinoma, but found none.

Note on Bismuth Poisoning.

Mr. Gunn read a note on bismuth poisoning.

Dr. Walter Smith recalled the history of the toxicology of bismuth. Apart from its simple mechanical effects, observations from a physiological point of view showed that it produced the phenomena of irritant poisoning. There were abundant experiments showing that bismuth produced just the symptoms to be expected from its alliance with the arsenic and antimony groups. There were several deaths on record, so that it was a drug not to be used recklessly, and he thought the surgeon should desist from using the sub-nitrate.

Dr. Hayes said a good many cases of poisoning had been recorded by radiographers from the use of the sub-nitrate. Patients had died of overdosing, and the deaths were said to be due to the toxic effects of the nitric acid liberated. The shadow of the nitrate was denser than that of the carbonate.

Mr. Gunn replied.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore.

Vital Statistics

For four weeks ending Saturday, January 30, 1909.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended January 30, 1909, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 22.5 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,142,308. The deaths registered in each of the four weeks ended Saturday, January 30, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :–

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Jan. 9	Jan. 16	Jan. 23	Jan. 30			Jan. 9	Jan 16	Jan. 23	Jan. 30	
22 Town Districts	20.4	21.4	21.6	22.5	21.5	Lisburn	22.7	45.5	22.7	27.3	29.5
Armagh	13.7	20.6	—	6.9	10.3	Londonderry	16.9	15.7	15.7	20.5	17.2
Ballymena	19.2	19.2	23.9	4.8	16.8	Lurgan	35.4	22.1	13.3	26.6	24.3
Belfast	16.7	19.3	18.9	19.7	18.7	Newry	33.6	21.0	25.2	16.8	24.1
Clonmel	35.9	20.5	5.1	30.8	23.1	Newtownards	28.6	40.1	17.2	28.6	28.6
Cork	19.2	20.5	29.5	25.3	23.6	Portadown	10.3	20.7	25 8	31.0	21.9
Drogheda	12.3	28.6	28.6	8.2	19.4	Queenstown	13.2	26.4	6.6	19.8	16.5
Dublin (Reg. Area)	23.6	23.7	25.3	25.4	24.5	Sligo	4.8	9.6	—	24.0	9.6
Dundalk	16.0	8.0	12.0	47.9	21.0	Tralee	26.4	31.7	37.0	21.1	29.0
Galway	7.8	23.3	19.4	11.7	15.6	Waterford	13.6	9.7	21.4	23.4	17.0
Kilkenny	44.2	49.1	29.5	34.3	39.3	Wexford	28.0	23.3	14.0	9.3	18.7
Limerick	27.3	16.4	17.8	17.8	19.8						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, January 30, 1909, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in eleven of the districts to 8.0 in Dundalk—the 12 deaths from all causes registered in that district including one from diphtheria and one from enteric fever. Included in the 146 deaths from all causes registered in Belfast are one from measles, one from whooping-cough, one from diphtheria, 2 from enteric fever, 2 from diarrhœal diseases, one from cerebro-spinal fever, and one from *cerebro-spinal meningitis*. Of the 37 deaths from all causes registered in Cork 2 are from measles, one from scarlet fever, and 2 from whooping-cough. Included in the 17 deaths from all causes registered in Londonderry are one from scarlet fever and one from diarrhœa. One death from scarlet fever is included in the 13 deaths from all causes registered in Limerick. Of the 4 deaths from all causes registered in Newry one is from whooping-cough, and one death from measles is included in the 5 deaths from all causes registered in Sligo.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, January 30, 1909, amounted to 238—117 boys and 121 girls; and the deaths to 203—89 males and 114 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 26.6 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the Area, the rate was 25.4 per 1,000. During the four weeks ending with Saturday, January 30, 1909, the death-rate averaged 25.7, and was 2.7 below the mean rate for the corresponding portions of the ten years 1899–1908.

The total deaths registered (203) included 6 from measles,

2 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and one (of an infant) from diarrhœa. One death from cerebro-spinal fever and one death from tetanus also were registered. In each of the 3 weeks preceding, deaths from measles had been 9, 8, and 9; deaths from whooping-cough 0, 2, and 2; deaths from diphtheria, one, one, and one; deaths from enteric fever, 5, 3, and 0; deaths from diarrhœal diseases, 3, one, and one: and deaths from cerebro-spinal fever, 0, 0, and 0.

Eight deaths were attributed to broncho-pneumonia and 6 to *pneumonia* (not defined).

Deaths from all forms of tuberculous disease, which numbered 29, 25, and 27, respectively, in the preceding 3 weeks, rose to 31 in the period under notice. The last figure includes 18 deaths from tubercular phthisis (*phthisis*), 4 deaths from tubercular meningitis, one death from *tabes mesenterica*, and 8 deaths from other varieties of the disease.

Four deaths from carcinoma, 2 deaths from sarcoma, and 5 deaths from cancer, malignant disease (undefined) were registered.

Four deaths due to prematurity were recorded.

Convulsions was the registered cause of death of 4 infants under one year of age.

Diseases of the heart and blood vessels accounted for the deaths of 24 persons, and the deaths attributed to bronchitis amounted to 38.

Of 6 deaths attributed to accident or negligence, 3 were of infants under one year of age by overlying in bed.

In 9 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 4 children under one year of age and the deaths of 3 persons aged 60 years and upwards.

Fifty-eight of the persons whose deaths were registered during the week were under 5 years of age (38 being infants under one year, of whom 11 were under one month old; and 67 were aged 60 years and upwards, including 38 persons aged 70 and upwards, of whom 10 were octogenarians and one (a man) was aged 99 years. The date of birth was December 9, 1809.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended January 30, 1909, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Jan. 9	-	*	*	4	-	-	5	-	2	14	15	-	*	*	2	42
	Jan. 16	-	*	*	3	1	-	13	-	-	23	11	1	*	*	1	52
	Jan. 23	-	*	*	10	-	-	-	-	3	9	13	-	*	*	1	38
	Jan. 30	-	*	*	7	-	-	6	-	-	16	12	1	*	*	-	42
Rathmines and Rathgar Urban District	Jan. 9	-	*	*	2	-	-	-		1	1	-	-	*		*	4
	Jan. 16	-	*	*	-	-	-	1	-	-	-	-	-			*	1
	Jan. 23	-	*	*	1	-	-	1	-	-	-	-	-	*	*	*	2
	Jan. 30	-	*	*	-	-	-	1	-	-	1	1	-			*	3
Pembroke Urban District	Jan. 9	-	3	-	1	-	-	-		-	1	2	-	*		-	12
	Jan. 16	-	1	-	-	-	-	-		1	-	1	-	*	5	-	8
	Jan. 23	-	1	-	-	-	-	-	-	-	-	-	-	*	6	-	7
	Jan. 30	-	2		2	-	-	-		-	-	-	-	*	2	-	6
Blackrock Urban District	Jan. 9	-	*		-	-	-		-	-	-		-	*	*	-	-
	Jan. 16	-	*	*	-	-		-	-	-		-	-	*	*	-	-
	Jan. 23	-	*	*	-	-		-		-	-	-	-	*	*	-	-
	Jan. 30	-	*	*	-	-		-	-	-		-	-	*	*	-	-
Kingstown Urban District	Jan. 9	-	*	*	1	-	-	-	-	-	-	-	-	-	*	*	1
	Jan. 16	-	*	*	-	-		-	-	-	-	-	-	*	*	*	-
	Jan. 23	-	*	*	-	-	-	-	-	-	-	1	-	*	*	*	1
	Jan. 30	-	*	*	-	-	-	-	-	-	-	-	-		*	*	-
City of Belfast	Jan. 9	-	*	*	9	-	-	8	-	1	4	4	-	*	*	*	26
	Jan 16	-	*	*	2	-	-	4	1	1	-	2	-	*	*	*	10
	Jan. 23	-	*	*	6	-	-	5	-	1	3	9	-	*	*	*	24
	Jan. 30	-	*	*	9	-	-	3	-	-	1	4	-	*	*	*	20

Cases of Infectious Diseases under Treatment in Dublin Hospitals.

During the week ended January 30, 1909, 33 cases of measles were admitted into hospital, 14 were discharged, there was one death, and 66 cases remained under treatment at its close.

Three cases of scarlet fever were admitted to hospital, 13 were discharged, and 42 cases remained under treatment at the close of the week.

This number is exclusive of 8 convalescents from the disease under treatment in Beneavin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus remained under treatment at the close of the week.

Nine cases of diphtheria were admitted to hospital, 9 were discharged, there were 2 deaths, and 24 patients remained under treatment at the close of the week.

Seventeen cases of enteric fever were admitted to hospital, 10 were discharged, there were 2 deaths, and 83 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 7 cases of pneumonia were admitted to hospital, 7 were discharged, there were 3 deaths, and 12 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, January 30, in 76 large English towns, including London (in which the rate was 17.8), was equal to an average annual death-rate of 18.0 per 1,000 persons living, the average rate for 8 principal towns of Scotland was 17.2 per 1,000, the rate for Glasgow being 18.0, and for Edinburgh 17.0.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended January 30, 1909. From this Report it appears that of a total of 66 cases notified, 23 were of scarlet fever, 20 of phthisis, 12 of diphtheria, 8 of erysipelas, 2 of cerebro-spinal fever, and one of enteric fever. Among the 317 cases of infectious diseases in hospital at the close of the week were 175 cases of scarlet fever, 45 of phthisis, 34 of diphtheria, 21 of whooping-cough, 8 of erysipelas, 6 of enteric fever, 3 of chicken-pox, 3 of cerebro-spinal fever, and 2 of measles.

Meteorology.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of January, 1909.

Mean Height of Barometer, - - -	30.090 inches.
Maximal Height of Barometer (4th, 9 a.m.), -	30.654 ,,
Minimal Height of Barometer (14th, 7 p.m.), -	28.864 ,,
Mean Dry-bulb Temperature, - - -	41.8°.
Mean Wet-bulb Temperature, - - -	39.8°.
Mean Dew-point Temperature, - -	37.4°.
Mean Elastic Force (Tension) of Aqueous Vapour	.225 inch.
Mean Humidity, - - - -	85.2 per cent.
Highest Temperature in Shade (on 1st and 18th),	53.2°.
Lowest Temperature in Shade (on 16th), -	31.7°.
Lowest Temperature on Grass (Radiation) (20th),	29.2 .
Mean Amount of Cloud, - - -	61.8 per cent.
Rainfall (on 14 days), - - - -	1.264 inches.
Greatest Daily Rainfall (on 10th), - -	.223 inch.
General Directions of Wind, - - -	W., S.W.

Remarks.

An open, damp, cloudy month, further characterised by a generally high barometer and a great prevalence of westerly and south-westerly winds. Ireland lay between a remarkably persistent anticyclone poised over Central Europe and an area of low and unsteady atmospheric pressure over Iceland and the adjoining portions of the North Atlantic Ocean. The week ended Saturday, the 9th, was mild, and the barometer stood high. In the second week the weather was rough and unsettled, rain, hail, sleet or snow falling almost daily, and thunder and lightning being reported from most districts at one time or another. On Tuesday, the 19th, an anticyclone appeared off the S.W. coast of Ireland, and this system, moving gradually across England to the Continent, eventually assumed the form of a zone of high pressure extending from the Baltic to Ireland. An easterly current set in abroad, and carried sharp and continuous frost to England, whereas there was very little freezing weather in Ireland, Scotland, and Norway, over which countries the wind drew into S. or S.W. Dublin experienced moderate cold from the 18th to the end of the month. At 7 a.m. of the 28th the thermometer read 24° at Liverpool, a coastal station, but 46° at Birr Castle, an inland station.

In Dublin the arithmetical mean temperature (42.7°) was above the average (41.7°) by 1.0°; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 41.8°. In the forty-four years ending with 1909, January was coldest in 1881 (M. T. = 33.2°), and warmest in 1898 (M. T. = 47.8°). In 1908 the M. T. was 41.5°.

The mean height of the barometer was 30.090 inches, or 0.216 inch above the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.654 inches at 9 a.m. of the 4th, and fell to 28.864 inches at 7 p.m. of the 14th. The observed range of atmospheric pressure was, therefore, 1.790 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41.8°, or 1.0° above the value for January, 1908. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .52), the M. T. becomes 42.8°, compared with a thirty-five years' (1871–1905) average of 41.9°. The arithmetical mean of the maximal and minimal readings was 42.7°, compared with a thirty-five years' average of 41.7°. On the 1st and 18th the thermometer in the screen rose to 53.2°—wind, S.W.; on the 16th the temperature fell to 31.7°—wind, W.S.W. The minimum on the grass was 29.2° on the 20th.

The rainfall was 1.264 inches, distributed over 14 days. Of this amount .223 inch fell on the 10th. The average rainfall for January in the thirty-five years, 1871–1905, inclusive, was 2.210 inches, and the average number of rainy days was 18. The rainfall, therefore, and rainy days were decidedly below the average. The record rainfall for January was in 1895—namely, 5.711 inches on 24 days. In 1876, only .406 inch was measured on but 9 days. In 1907, only .428 inch fell on but 9 days. In 1908, 2.055 inches fell on 16 days.

The atmosphere was foggy on the 20th, 21st, 22nd, 23rd and 25th. High winds were noted on 11 days, reaching the force of a gale on 3 days—the 13th, 17th and 18th. Snow or sleet fell on the 15th and 16th; hail on the 13th, 14th and 15th. Solar halos were seen on the 7th, 9th, 14th and 29th; lunar halos on the 7th and 30th, and lunar coronas on the 2nd, 7th, 29th and 30th. Temperature reached or exceeded 50° in the screen on 8 days; while it fell to 32° in the screen on only one night, compared with 8 nights in 1908, 4 in 1907, 2 in 1906 and in 1905, 3 in 1904, 7 in 1903 and in 1902, 3 in 1901, but 18 in 1895. The

minima on the grass were 32° or less on 13 nights, compared with 15 nights in 1908, 16 in 1907, 11 in 1906, 9 in 1905, 11 in 1904, 9 in 1903, 12 in 1902, 11 in 1901, and 29 in 1895. On the 16th the maximal temperature in the screen was 38.4°.

In Dublin the rainfall up to January 31st, 1909, amounted to 1.264 inches on 14 days, compared with 2.055 inches on 16 days in 1908, only .428 inch on but 9 days in 1907, 4.127 inches on 22 days in 1906, 1.897 inches on 14 days in 1905, 2.535 inches on 19 days in 1904, 3.269 inches on 20 days in 1903, 1.614 inches on 12 days in 1902, 2.672 inches on 17 days in 1901, only .406 inch on 9 days in 1876; and with a thirty-five years' average (1871–1905) of 2.210 inches on 18 days.

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Mr. William J. Good reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 30.090 inches, the range of atmospheric pressure being from 30.658 inches at 9 a.m. of the 4th to 28.881 inches at 9 p.m. of the 14th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 42.3°. The arithmetical mean of the daily maximal and minimal temperatures was 43.2°. The screened thermometers rose to 54.0° on the 18th, and fell to 32.0° on the 16th. On the 26th the grass minimum was 23.5°. Rain fell on 11 days to the amount of 1.205 inches, the greatest fall in 24 hours being .240 inch on the 18th. The duration of bright sunshine, according to the Campbell-Stokes recorder was 35.5 hours, of which 5.2 hours occurred on the 19th, and again on the 27th. The mean daily duration of sunshine was 1.1 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 41.7°; at a depth of 4 feet it was 45.1°.

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At the Ordnance Survey Office, Phœnix Park, Dublin, rain fell on 15 days to the amount of 1.494 inches, the greatest measurement in 24 hours being .350 inch on the 18th. The total duration of bright sunshine was 61.6 hours, the largest amount recorded on one day being 7.4 hours on the 19th.

Mr. R. Cathcart Dobbs, J.P., reports a rainfall of .905 inch on 10 days at Knockdolian, Greystones, Co. Wicklow, the largest measurement in 24 hours being .160 inch on the 5th.

Dr. Arthur G. Price, writing from Clonsilla, on the Burnaby Estate, Greystones, Co. Wicklow, reports that the rainfall at

that place was .96 inch on 11 days, compared with 1.63 inches on 15 days in 1908, and only .550 inch on 9 days in 1907. The greatest fall in 24 hours was .175 inch on the 11th. The mean temperature of the month was 41.4°. The thermometer rose to 52° on the 3rd, and fell to 30° on the 15th. Frost occurred on 4 days.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. Launcelot T. Burra measured 1.085 inches of rain on 14 days, the maximum in 24 hours being .236 inch on the 18th. The mean temperature of the air at 9 a.m. and 9 p.m. was 42.4°. The extreme readings of the thermometer in the shade were—highest, 52.7° on the 3rd; lowest, 30.8° on the 16th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was .87 inch on 12 days, compared with only .362 inch on but 6 days in 1907, and 1.495 inches on 14 days in 1908. The greatest fall in 24 hours was .17 inch on the 18th. The mean shade temperature was 37.3°, the extremes being—highest, 51° on the 18th; lowest, 26° on the 15th.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was 1.34 inches on 15 days, the greatest daily measurement being .25 inch on the 14th. The thermometer in the shade ranged from 52° on the 3rd, 17th and 18th to 32° on the 16th. The mean shade temperature was 42.5°. Hail showers fell on the 13th and 14th, and snow on the 15th.

Dr. Christopher Joynt, F.R.C.P.I., recorded 1.215 inches of rain on 13 days at 21 Leeson Park, Dublin. The heaviest fall in 24 hours was .220 inch on the 10th. The same quantity was measured again on the 18th.

Mr. Robert O'B. Furlong, C.E., returns the rainfall at Cloneevin, Killiney, at .93 inch on 12 days. The maximal fall in 24 hours was .25 inch on the 5th. The average January rainfall of the 24 years (1885-1908) was 2.310 inches on 16.7 days.

In Cork, Mr. William Miller measured 2.09 inches of rain on 18 days, the greatest rainfall in 24 hours was .37 inch on the 28th. The rainfall was 2.11 inches in defect of the average for January.

The Rev. Arthur Wilson, M.A., reports that rain fell on 21 days at the Rectory, Dunmanway, Co. Cork, to the amount of 3.47 inches. The heaviest falls were .57 inch on the 14th, .53 inch on the 28th, and .50 inch on the 15th. On the whole, it was a fine month, except from the 13th to the 18th, inclusive. Heavy frost prevailed on the 19th and 20th.

PERISCOPE.

THE DIAGNOSIS OF ACUTE MILIARY TUBERCULOSIS.

In an article on this subject (*New York Medical Journal*, December 26, 1908), Dr. Silvio von Ruck, Associate Medical Director of the Winyah Sanatorium, Asheville, North Carolina, emphasises the more important points which are of real value in the distinctive diagnosis of the disease from other affections as follows :—(1) The rapid emaciation which is a striking feature in almost every case, and which is out of all proportion to the degree of fever, the state of the digestive organs, and the amount of food taken. (2) The bronchiolitis of acute miliary tuberculosis of the lung is characteristic in that the catarrhal signs appear first in the smaller and then extend to the larger bronchi, instead of in the reverse order as in ordinary bronchitis. In further contrast to ordinary bronchiolitis the lower posterior portions of the lung in acute miliary tuberculosis are often less involved than the upper. (3) Cases in which typhoid fever is minutely simulated by acute miliary tuberculosis or in which the two diseases co-exist are rare, and a careful study of the pulse, temperature, and respiration will usually lead to a correct distinction. (4) Serum reactions are reliable when present in well marked degree, but tuberculous patients may show a modified Widal reaction, and the Arloing-Courmont reaction is not always present in tuberculosis. (5) The ophthalmic test as applied by Calmette and the cutaneous application of tuberculin according to the method of von Pirquet, while not yet established as thoroughly reliable, are safe, and one or both should be employed in all doubtful cases, especially if the subcutaneous injection of tuberculin is contraindicated. (6) Bacteriological examinations of the blood, fæces, and secretions may be of great aid in doubtful cases. (7) The appearance of choroid tubercle or miliary tubercle of visible mucous membranes in the course of the disease removes all doubt.

LITERARY NOTE.

Messrs. Bale, Sons & Danielsson, Ltd., will shortly issue a History of the Reading Pathological Society, written by the President, Dr. Jamieson B. Hurry. This Society, as is well

known, ranks as one of the oldest medical societies in the country, and has accomplished an amount of work such as few societies can rival. Its zeal for the advancement of the Science and Art of Medicine is shown by the numerous original communications which have been published during the past seventy years, and to which full references will be given. The volume will be illustrated by a series of portraits, and contain descriptions of the medical library and pathological museum which form so essential a part of every progressive medical society. This work should prove of interest to the secretaries of the various local medical societies throughout the United Kingdom, as with one exception—that of the Royal Medical and Chirurgical Society—such a record is believed to be unique.

THE BRITISH MEDICAL LIBRARY ASSOCIATION.

At a meeting of those interested in medical libraries held at Leeds, on Saturday, January 9th, it was decided unanimously to form an Association of Medical Libraries, and a provisional committee was appointed to draw up the constitution and rules. Professor Osler (Oxford) was invited to become the first president, and Professor Walker Hall (Bristol) and Mr. Cuthbert E. A. Clayton (Librarian, Manchester Med. Soc.) were asked to undertake the duties of temporary secretaries. The following are some of the objects of the Association:—(1) Intercourse of those interested in medical library work, and the discussion of matters associated with the fostering and care of libraries. (2) Diffusion of information as to the branches of medical literature specially catered for at different centres, and as to the value of the various books and new periodicals which are issued from time to time. (3) The promotion of measures whereby a larger number of practitioners in each centre may be induced to utilise the library facilities of each district. (4) The consideration of matters connected with the present rapid increase of periodicals, publications of books, &c. (5) The opening up of better chances of advancement for library assistants. By such means there would be an inducement to parents to put their sons to such an occupation, and the librarians would be able to have better material for training. (6) The exchange of duplicate books and periodicals. When the Association is in working order it is hoped that a certain number of the libraries interested will join together to form a circle for the loan of their research and other literature.

perate man, and never had any venereal disease, nor did he ever suffer from any form of skin disease until about six years ago, when both thumbs were attacked with redness and swelling, like that of a chilblain. Gradually, also, the nails were affected and fell off. Ulceration developed on the tips of fingers of left hand one year ago: on the right hand, a few weeks ago. Three years past the right eyelids were involved, and four months ago the left eyelids. Ten months ago a patch of ordinary lupus on the right cheek, followed six months later by a similar patch on the left cheek. No other part of the body was attacked; lips and mouth quite free.

Present State—Right Hand.—Thumb, middle and ring finger affected. Thumb stumpy, deformed, swollen and bulbous. Nail destroyed, and an irregular transverse line of ulceration across the dorsum of the phalanx. Last phalanx of middle finger dusky and swollen: nail spoon-shaped, soft, deeply striated longitudinally. Second phalanx of ring finger, small, with dusky red swelling on the back; nail normal.

Left Hand.—Thumb, index and ring fingers affected. Last phalanx of thumb deformed, swollen, dusky red. Nail soft, almost destroyed, and oozing sero-pus at the side. Last two phalanges of index finger dusky red, swollen; nail a mere remnant, thick and soft, ulcerated at base. Ring finger deformed, dusky red and swollen; last phalanx turned to ulnar side. Nail soft, striated; three saucer-shaped depressions on its back, separated by vertical ridges.

Face.—Symmetrically, on the centre of each cheek, a patch of nodular and ulcerated lupus, about one and a half inches long, extending obliquely from below the eye downwards and outwards.

Nose.—Mucous membrane swollen and granular.

Eyes.—The right lids slightly reddened and swollen. Inner surfaces of both lids affected. Upper very vascular, and finely granular, but not bleeding when rubbed. Lower lid thickened and slightly everted. Bulbar conjunctiva vividly injected. A pale, pulpy new growth involving inner edge of cornea. Sight good. Left eye not so severely affected; upper lid red and swollen; palpebral conjunctiva very vascular and granular

The patient was transferred to the Royal Victoria Eye Hospital, and Sir H. R. Swanzy curetted the lids.

In one other case of lupus I have observed pulpy swelling

of the fingers, and the case is referred to by Dr. Radcliffe Crocker ("Diseases of the Skin," 3rd ed., p. 714).

Pulpy nodosities appeared first on the fingers, then psoriasis-like eruption on the body, which left scars; on the tip of the nose was undoubted ordinary nodular lupus, which ulcerated; and on the nose and fingers there were symmetrical exostoses about 3 cm. by 2 cm.

A radiogram by Dr. Haughton revealed bony outgrowths in several places, chiefly at articular ends of phalanges.

The most remarkable circumstance in the present case is, I take it, the serious and extensive implication of the bones of the fingers, and I am much indebted to Dr. E. Watson for the beautiful radiogram which so well illustrates the state of affairs. The dissolution of the bones, leaving scattered islets here and there, is very noteworthy.

The deformity of the hands calls to mind the mutilation that is frequently seen in leprosy, and the latter diagnosis would scarcely be incredible were attention directed to the hands alone. (Compare the illustrations given in Hillis's "Treatise on Leprosy in British Guiana.")

A striking photograph of the destructive effects of lupus on the hand is shown in Plate 71 of Hutchinson's "Smaller Atlas of Clinical Illustrations."

In his enormous experience, Sir Jonathan Hutchinson has seen very few examples of lupus mutilans. In all it was associated with lupus vulgaris on other parts, and in all the disease had begun in early life. In my case the disease first showed itself at thirty years of age.

Hutchinson also mentions that a lady, about thirty years of age, who suffered from lupus of the face, was brought to him by Mr. Sibley, and one of her hands was exactly in the condition shown in the plate in his Smaller Atlas.

A similar condition is sometimes produced in the foot.

Pathologically the state of the bones may, I presume, be regarded as a tuberculous rarefying osteitis.

Even in the worst cases of lupus of the nose and face, it is very noteworthy how the bones escape, not excepting the thin vomer, and caries of the palate bones never ensues.

Lastly, I would draw attention to the extensive involvement of the conjunctiva. Lupus of the conjunctiva usually occurs as an extension of the disease from the adjacent skin, or, possibly, up the nasal duct. Excellent illustrations of its clinical features are shown in Kaposi's "Atlas of Diseases of the Skin," plates 213–216.

As to treatment, there is little to be said. I thoroughly scraped the patches on the cheeks, and subsequently drilled any residual specks with liquid carbolic acid, and the result is very satisfactory, and the scar is scarcely visible.

Nothing can reasonably be expected from treatment of the digital disease.

ART. XII.—*Prognosis in Valvular Disease of the Heart.*[a] By SIR JOHN F. H. BROADBENT, Bt., M.D., F.R.C.P.; Physician to Out Patients, St. Mary's Hospital; Physician to the Hampstead General Hospital; Assistant Physician to the London Fever Hospital.

THE subject of prognosis in heart disease is one of the first importance to both physician and patient. The latter will wish to know not merely whether he is in danger of sudden death, but what are his prospects as to the future, and how best he may regulate his mode of life, exercise, diet, &c., so as to give himself the best possible chance.

The physician is required, therefore, not merely to make an accurate diagnosis of the nature of the affection, but to forecast what effect it is likely to have in shortening the patient's life and in limiting the sphere of his activity. To do this he must have a clear idea as to the relative danger attending the various valvular lesions and also some method of estimating the extent of the lesion.

In 1884 my late father delivered before the Harveian Society the Harveian Lectures on "Prognosis in Valvular Disease of the Heart," in which he laid down certain rules for guidance in prognosis, based on the structural changes in

[a] Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, February 26, 1909. [For the discussion on this paper see page 306.]

the heart and vascular system which take place as a result of the lesion, pointing out how an approximate estimation of the extent of the lesion could be arrived at from the degree of structural change to which it had given rise.

I had the privilege of working under him and with him for many years, and of watching the course of many cases of heart disease, both in hospital and private practice, and I have seen his conclusions fully justified, and found them of inestimable value myself in attempting to forecast the future in cases of valvular disease.

There are, of course, many other points which must be taken into consideration, such as the age and family history of the patient, the ætiology of the lesion, whether due to acute endocarditis or chronic degenerative change, the character of the murmur, and the degree to which it replaces the sound it accompanies, &c. These will be dealt with *seriatim* in the discussion on the different valvular lesions.

One is apt to overlook the fact that, on the establishment of a valvular lesion, nature does her best to remedy the defects in the circulation to which it gives rise by every means in her power, and that the hypertrophy, and even dilatation in some instances, of the various cavities of the heart which we look upon as pathological are really beneficial, and the only available methods of satisfactorily counteracting the disturbing effects of the reflux or obstruction to which the lesion has given rise. The one mistake which she makes is in the excessive formation of fibrous tissue thrown out in the attempt at repair, which later on may contract to an inordinate extent and lead to disastrous results, more especially in the case of mitral stenosis. It is remarkable also how the vascular system adapts itself to meet the different requirements of the circulation in valvular lesions. Thus, in mitral or aortic stenosis we find the vessels, taking the radial artery as our guide, contracted down and small in proportion to the degree of narrowing of the valvular orifice: for it is obvious that if the vessels remained their normal size the attenuated stream of blood flowing into them could not maintain the pressure requisite for an efficient circulation.

In aortic incompetence, on the other hand, where we have a powerful hypertrophied left ventricle throwing into the arterial system with great force an abnormal quantity of blood, we find the arteries large and relaxed and the peripheral resistance diminished by a similar relaxation of the arterioles, so that the great vessels are in a better position to stand the increased strain on their walls, and the work of the heart is proportionately lessened.

Reserve Power of the Heart.—In the healthy heart there is an enormous reserve power which enables it to respond to the increased demands entailed by exertion and exercise without any ill effect. This reserve power is diminished if one of the valves be damaged, even though compensation has taken place, in proportion to the extent of the valvular lesion. If the heart be taxed beyond the limit of its reserve, warning symptoms, such as dyspnœa, &c., will set in, and if the exertion be persisted in in spite of these breakdown of compensation and serious damage to the heart may result.

In regard to the relative danger of the different valvular lesions I would place them in the following order:—

1. *Aortic incompetence* due to degenerative changes in later life.

2. *Aortic incompetence*, the result of aortic endocarditis. In both varieties sudden death on any undue strain is to be apprehended.

3. *Mitral Stenosis.*

4. *Aortic Stenosis.*

5. *Mitral Incompetence.*—This may be due to a variety of causes, and the prognosis will vary greatly according to the ætiology of the lesion. In placing it last in this list it must be understood that this holds good only when it is the result of simple rheumatic endocarditis unaccompanied by any marked degree of myocarditis. It does not apply to those cases met with in children, in which there is extreme dilatation of the heart consequent on severe rheumatic carditis, and having no causal relation to the valvular lesion, which is of relatively minor importance in comparison with the damage inflicted on the cardiac muscle.

Aortic Incompetence.

In discussing the question of prognosis in aortic incompetence we must draw a sharp line between that which results from acute endocarditis in the young and that which is due to degenerative changes which affect the root of the aorta or its valves in later life.

In the former, a lesion once established does not increase in severity, but the cicatricial contraction which occurs in the process of repair will tend rather to limit than to increase the incompetence.

In the latter the incompetence is commonly due to dilatation of the root of the aorta, to which the valves are attached, from weakening of its wall by atheromatous degeneration, and this is likely to be progressive.

We will now consider for a moment the consequences of aortic incompetence. Immediately after the closure of the semi-lunar valves the elastic recoil of the aorta drives back into the ventricle an amount of blood, which will vary in proportion to the degree of incompetence of the valves.

The ventricle is in diastole, and blood is being poured into it from the left auricle: in addition to this, blood is forced back into it under pressure from the aorta. In its relaxed condition it is unable to resist the over-distension, which is a consequence, and it gives way under the strain and dilates.

As it has to propel a greater volume of blood, and resist, as far as possible, excessive distension by the regurgitant stream, it is essential that its walls should be strengthened, and we find that under favourable circumstances hypertrophy of the left ventricle, in process of time, takes place.

The degree of hypertrophy is, as a rule, proportionate to the degree of incompetence, and in prognosis is of great importance as one of the means of estimating the extent of the lesion. Certain qualifications are, however, necessary.

1. In the first place, in this, as in all cases of endocarditis due to rheumatism, we must bear in mind that it is not the valves alone which suffer, but that the heart muscle seldom escapes damage. In proportion to the degree of myocarditis there is loss

of tonicity of the heart muscle and a corresponding tendency to dilatation, which may be extreme even in the absence of a valvular lesion, as we see in some cases of pericarditis. If, therefore, we have in addition to an aortic lesion a severe degree of myocarditis the initial dilatation may be out of all proportion to the degree of incompetence, as will also be the hypertrophy that ensues if a patient recovers.

2. If the patient gets up too soon and goes about before sufficient time has elapsed for the structural changes necessary for compensation to take place, the degree of dilatation and hypertrophy which ensue may be out of proportion to the lesion.

3. If the patient has passed the age of adolescence when the lesion occurs, it is improbable that the requisite degree of hypertrophy will ensue, as regeneration of muscular tissue does not occur to any extent in later life.

The Pulse.—The most remarkable feature in the pulse is the collapsing character, to which attention was first drawn by Corrigan, due to the loss of support to the column of blood in the aorta on its elastic recoil, and consequent sudden fall of pressure entailed by the leakage through the incompetent valves. This is more marked when the arm is held in the vertical position. It is proportionate to the degree of incompetence of the valves, and hence constitutes an important criterion in prognosis as one of the indications of the extent of the lesion.

The large size of the arteries and relaxed condition of the arterioles are also remarkable, and, as has already been pointed out, this is a protective measure against overstrain by the increased volume and greater force with which the blood is projected by the hypertrophied and enlarged heart into the arterial system. The size of the artery, therefore, is of important prognostic significance.

The Symptoms.—The symptoms are mainly those of deficient blood supply in the systemic circulation consequent on the

ill-sustained blood pressure. Pallor of countenance, a tendency to faintness on suddenly assuming the erect from the recumbent position, dyspnœa, præcordial pain and oppression on exertion, and it may be anginoid pains, are among those most frequently met with. The readiness with which they set in on slight exertion and the degree of severity must be taken into account in prognosis. When compensation is perfect, as may be the case in moderate lesions, they will not be much in evidence, but they are often the first danger signals in cases of old standing, premonitory of failing compensation.

To sum up.—The degree of hypertrophy of the left ventricle, the degree of collapse and size of the pulse, and the readiness with which symptoms are induced are the leading points in arriving at an approximate idea of the extent of the lesion, and consequently at a prognosis in aortic incompetence. Other points to be taken into consideration are :—

1. *The age* of the patient at the time the lesion is established. This is of the utmost importance. If it occurs in youth there is every chance of satisfactory compensation being established, but if it occurs in middle or later life, even as a result of acute endocarditis, there is little chance of the left ventricle responding to the call for the hypertrophy which is essential. The usual sequela in these cases and in those of great severity in the young is extreme dilatation of the left ventricle, with secondary mitral incompetence followed by complete failure of compensation and back working through the lungs. The right ventricle, being unequal to the demand upon it, breaks down, and enlargement of the liver and dropsy, &c., ensue.

2. *The Murmur.*—This may be loud or soft, long or short. Sometimes it is inaudible at the aortic cartilage, but heard distinctly over the sternum to the left at the level of the third or fourth left costal cartilages. Speaking generally, a long, loud murmur indicates that the heart is acting vigorously, and that the leakage is not great, and is therefore of favourable prognostic significance. A weak, short murmur, replacing to a great extent the second sound, indicating the opposite state of things, is necessarily of unfavourable augury.

3. *The Second Sound.*—In moderate degrees of incompetence

this is not replaced to any extent by the murmur. It is not always possible to be certain in listening over the aortic area that the second sound we hear there is not the pulmonic conducted across, but there can be no such doubt when we listen over the carotid in the neck. If the second sound is audible here we can be sure that it is not replaced to any extent by the murmur, and it is therefore a favourable element in prognosis.

The Aortic Incompetence of Later Life.—This is usually the result of chronic degenerative change, affecting not only the valves, but the aorta. Frequently dilatation of the root of the aorta, to which the valves are attached, is the primary lesion and the main cause of the incompetence.

The character of the aortic second sound in these cases is pathognomonic. It is, as a rule, low pitched, loud and booming. This is quite distinct from simple accentuation, and is indicative of dilatation of the aorta. The diastolic murmur does not replace the sound to any extent, and may be inaudible at the aortic cartilage, but heard distinctly along the left border of the sternum at the level of the third or fourth costal cartilage.

The degree of incompetence is seldom very great, but is liable to be progressive from the nature of the changes in the aorta which have given rise to it. If at all severe, the left ventricle is, as a rule, unable to respond to the extra strain, and soon breaks down with resulting secondary mitral incompetence, back working through the lungs, &c.

The incompetence of the valves, however, may be the least serious of the dangers which threaten the patient. In three instances I have seen aneurysm of the ascending aorta develop in cases which, when they first came under observation, presented only the physical signs of aortic incompetence and slight dilatation of the aorta. Degenerative changes in the heart wall, atheroma of the coronary arteries with resulting symptoms of angina, sclerosis of the renal vessels giving rise to uræmic symptoms, are also possible sources of danger which we must bear in mind when we attempt to forecast the future in these cases.

Aortic Stenosis.

The effect of aortic stenosis is to diminish the size of the blood stream flowing from the heart into the aorta, and to throw extra work on the left ventricle, which has to use greater force to overcome the obstruction. Consequently the degree of hypertrophy of the left ventricle will be one of the most trustworthy indications of the degree of obstruction. As the calibre of the arteries is reduced in proportion to the size of the blood stream the size of the radial artery will be a further important clue to the degree of stenosis.

These, being the two main guides as to the degree of severity of the lesion, are the two most important considerations in prognosis.

They are also important in arriving at a diagnosis, as there are many varieties of systolic murmur heard at the aortic cartilage which do not indicate stenosis of the aortic orifice, and in later life a rough systolic murmur is frequently met with, due to some rigidity or degenerative changes in the aortic valves which do not cause actual stenosis. Time will not, however, permit of my discussing the differential diagnosis of these aortic systolic murmurs.

Pure aortic stenosis is not very common, and it is difficult to imagine how it can exist without some incompetence, but is more frequently met with in combination with aortic regurgitation, when the modification in the character of the pulse which it entails is of great diagnostic value.

In my experience it is one of the least serious of the valvular lesions unless associated with degenerative changes in the aorta in later life. It is not progressive in the same degree as mitral stenosis, presumably because the unyielding wall of the aorta to which the valves are attached maintains its contour, and is not drawn in by the cicatricial contraction which affects the damaged valves. If, however, all three cusps of the valve have been attacked by endocarditis their edges may become adherent and an extreme degree of stenosis may result.

I have at the present time a boy, aged thirteen, attending

my out-patient department at St. Mary's who apparently has pure aortic stenosis of moderate degree, a loud systolic aortic murmur and a small pulse, with a forcible apex beat in the sixth space in the nipple line, who has been under observation for two years. During this time the disease has not progressed, and it is probably of considerably longer standing. He has no symptoms beyond dyspnœa if he attempts to run or take violent exercise.

In another case—that of a woman, aged fifty-five, with a systolic aortic murmur and a moderately hypertrophied left ventricle—the patient was not aware she had anything the matter with her heart, and had no symptoms attributable to the affection when she came under observation.

In a third case—that of a gentleman, aged sixty-nine—the patient has to my knowledge had aortic stenosis, with very slight incompetence, for at least fourteen years, and has been able to go about and enjoy life, experiencing practically no ill effects, as he has always been careful to avoid undue strain or exertion.

Aortic Stenosis and Incompetence Combined.—I think that there can be no question that when a moderate degree of stenosis supervenes on severe aortic incompetence the result is beneficial in so far as it diminishes the amount of reflux, and in more than one case of severe aortic incompetence I have seen this exemplified.

The combined lesion, however, though limiting the amount of reflux, puts increased work on the left ventricle, and in some cases the stenosis progresses to such an unfavourable degree, as the result of cicatricial contraction of adherent cusps, that it becomes more serious than the original incompetence.

Mitral Stenosis.

The prognosis in this affection is always serious as regards duration of life, though the patient may survive a considerable number of years, as the tendency is for the constriction of the mitral orifice to be progressive. This is due in part to cicatricial contraction, but we must

also recollect that in many cases the lesion is established early in life, before the growth of the heart is completed, and thus the relative disproportion between the mitral orifice and the cavities of the heart will increase as the heart attains its full development. I have been struck by the large number of patients that come up to my out-patient department between the ages of twenty-five and thirty-five, chiefly women, complaining of shortness of breath, who are not aware that they have heart disease, but in whom one finds on examination that they have well-marked mitral stenosis. The probability would seem to be that they acquired a mitral lesion, probably incompetence in childhood or early adolescence, and that stenosis subsequently ensued from cicatricial contraction, but it was only when they had passed the age of adolescence that the symptoms became so pronounced as to cause them to come for treatment.

Another unfavourable element in prognosis is the high pressure in the pulmonary circulation.

The main work of compensation falls on the right ventricle which hypertrophies in response to the demand. We have thus a powerful pump at one extremity with a narrow nozzle, the mitral orifice, at the distal end of a series of tubes consisting of the pulmonary vessels, in which the pressure must necessarily be very greatly raised. As a consequence the unsupported capillaries become distended and tortuous, project into the alveoli, and frequently rupture. Proliferative changes take place in the alveolar walls, which become thickened, and tend to shrink and contract, and eventually we have the tough, firm condition of lung known as brown induration. The surface available for aëration of the blood is thus seriously impaired and diminished, which accounts for the dyspnœa and cyanosis which are such prominent features in advanced cases.

In attempting to arrive at a trustworthy prognosis in mitral stenosis we cannot rely to the same extent as in aortic disease on the structural changes in the heart as indicative of the severity of the lesion. The degree of hypertrophy of the right ventricle will afford useful information as to the extra

work it is called on to do in the way of compensation, but the condition of the left ventricle is very variable. The tendency in simple mitral stenosis would be for the left ventricle to gradually diminish in size as the orifice narrows and the supply of blood becomes more limited, and in many cases *post-mortem* we find a very small left ventricle with a large hypertrophied right ventricle. Often, however, the left ventricle is somewhat dilated and hypertrophied in spite of a marked degree of narrowing of the mitral orifice. The explanation of this would seem to be that considerable dilatation, due to myocarditis, together with mitral incompetence, was the primary lesion following on the attack of rheumatism; that some hypertrophy subsequently took place, and stenosis set in at a later period.

The size of the radial artery and pulse at the wrist affords important evidence as to the degree of stenosis, as it narrows down in proportion to the diminution in the supply of blood from the imperfectly filled left ventricle.

Auscultatory evidence affords useful information as to the progress of the affection, as was first pointed out by my late father, who differentiated three stages thereby.

1. The first stage, in which a presystolic murmur is heard leading up to a loud, short, first sound, followed by a second sound, which is frequently reduplicated.
2. A second stage, in which the second sound is no longer heard at the apex, but only a presystolic murmur and first sound.
3. A third stage, in which the presystolic murmur is lost, and only the first sound is audible.

In the first stage the symptoms are rarely of a serious nature. There may be some cyanosis, and dyspnœa may be readily induced if the stenosis is of old standing, in consequence of secondary changes in the lungs already referred to, but as a rule the symptoms are not severe enough to compel the patient to lie up unless bronchitis or some other complication supervenes.

It will be noted on careful observation that the duration of systole is considerably shortened, the loud, snapping, first

sound being rapidly followed by the reduplicated second, and that diastole is prolonged. This is only what we should expect, as it will take a longer time than normal for the blood to flow from the auricle through the narrowed orifice to the ventricle, and it is probable that when systole commences the ventricle is imperfectly filled, and the systolic period will be shorter and less forcible in proportion to the diminished amount of work the ventricle has to perform.

In the second stage, I think we are justified in inferring that the second sound is no longer audible at the apex, because the diminished volume of blood propelled into the aorta at each systole is too small to distend the aorta sufficiently to produce the powerful recoil which is necessary for the generation of an audible second sound.

Consequently, if we accept this explanation, we may infer that the degree of stenosis is considerable, inasmuch as the ventricle is so imperfectly filled, and that the prognosis is proportionately more unfavourable.

In the third stage the disappearance of the presystolic murmur indicates the breakdown of compensation. The rhythm is extremely irregular, and frequently we hear a confusing medley of sounds on listening at the apex—sometimes a first sound, sometimes a systolic murmur, sometimes both.

The explanation appears to be that the right ventricle having given out, there is insufficient pressure in the left auricle to generate a presystolic murmur; this accounts for its disappearance. When the pressure in the auricle is sufficient to prevent reflux from the ventricle we have a first sound only; when the pressure in the auricle is so low that it does not prevent reflux we have a systolic murmur. The pressure in the left auricle varying greatly according to the force and frequency of the beats of the right ventricle, and being also influenced by respiration, we thus have this confusing medley of sounds.

We are apt to forget that in mitral stenosis there are practically no valves, but simply a slit, or circular hole, in a diaphragm of fibrous tissue between the auricle and ventricle, and that in all cases we should have mitral reflux were it not

prevented by the high pressure in the auricle maintained by the hypertrophied right ventricle. The occurrence, therefore, of mitral reflux when the right ventricle breaks down, in cases where it has not been present for many years, is readily understandable.

Of course, apart from this, mitral incompetence is very frequently met with, combined with stenosis, and I am inclined to think that this combination is more favourable than stenosis alone as indicating that the orifice is not greatly contracted, and that it may in some instances represent an earlier stage of what eventually develops into pure mitral stenosis when the orifice becomes too small to allow of regurgitation, provided that the presure in the left auricle is maintained.

The symptoms are, perhaps, some of the most important factors in prognosis. Cyanosis and dyspnœa on slight exertion are especially liable to be present, and the degree of ease with which they are induced affords useful evidence as to the baneful effect the high pressure in the pulmonary circulation is having on the lungs.

Infarction of the lungs is frequently met with in the terminal stages of mitral stenosis, and is of grave prognostic significance, as it indicates extreme stasis of the pulmonary circulation. In my opinion it is due to thrombosis from stagnation of the circulation rather than to embolism, and I have never known a case recover efficient compensation after its occurrence. Dropsy of the lower limbs is a very late symptom, and may be absent throughout, though ascites is not infrequently met with, whereas in mitral incompetence dropsy is common, and may occur comparatively early in the course of the disease, and efficient compensation may be restored even after several attacks. In pure mitral stenosis, if present at all, it is usually a terminal feature occurring only in the third stage.

Mitral Incompetence.

The range of possibilities as regards prognosis is greater in mitral incompetence than in any other valvular affection. It may be due to a variety of causes, such as

dilatation of the left ventricle without any lesion of the valves, as may occur after various acute febrile infections, more especially when the patient returns to work too soon after illness. I have frequently met with it in out-patients recovering from influenza or suffering from acute pulmonary tuberculosis. It is often present in anæmia, and is met with in Bright's disease, more especially in the subacute varieties attended with œdema. I do not propose to discuss the prognosis of these varieties, as it does not fall within the scope of my paper, but I instance them only so that we shall not forget that mitral incompetence may be present without any lesion of the valves, and to support my contention that the latter is not *per se* necessarily at all a serious affection.

When, as a sequela to an attack of rheumatism in a child, we find the left ventricle greatly enlarged, with a considerable degree of dilatation and slight hypertrophy, and note that there are marked symptoms, such as rapid respiration, dyspnœa on slight exertion, and that a loud blowing systolic murmur is present at the apex, we are, perhaps, too inclined to attribute these to a lesion of the mitral valves. In many cases of this nature, in which enlargement of the liver, dropsy, &c., have set in, and which have eventually proved fatal, I have found at the autopsy no actual lesion of the mitral valves, but only extreme dilatation of the ventricle. This condition is more commonly met with in cases of pericarditis, but may be present also in the absence of this complication.

There can be no question here that the fatal issue is the result not of the valvular lesion, but of the damage to the myocardium inflicted by the toxins of the rheumatic micro-organisms and consequent loss of tone of the muscle, which gives rise to extreme dilatation of the ventricle. Microscopically we see evidence of this damage in the loss of striation, and the granular and fatty degeneration of the muscle fibres, and the areas of cell infiltration scattered throughout.

When, therefore, we have mitral incompetence associated

with great dilatation of the left ventricle, which does not subside after the attack of rheumatism, the prognosis is necessarily grave.

The mere existence of mitral incompetence cannot well give rise to dilatation of the left ventricle, but in cases in which compensatory changes in the right ventricle have taken place we may find the apex beat displaced outwards and slightly downwards by the hypertrophy of the right ventricle.

If a mitral systolic murmur be established during an attack of rheumatism, and there is no marked dilatation of the left ventricle, we may infer that the incompetence is the result of a lesion to the valves by endocarditis, and not attributable to the myocarditis, and we must endeavour to estimate its severity in order to arrive at a trustworthy prognosis. The degree to which the murmur replaces the first sound, the character of the pulse, and the readiness with which symptoms are induced, will be our best guide as to the extent of the lesion, and consequently as to prognosis.

If a good first sound is audible as well as the murmur, the lesion is rarely so severe as to produce symptoms in the nature of back working, and it is probable that efficient compensation will be readily established under favourable circumstances. It is remarkable in out-patient work what a number of cases of mitral incompetence one comes across in patients who are not aware that they have any cardiac lesion, as compensation is so efficient, and in whom the lesion appears to date from an attack of rheumatism many years ago, if, indeed, they are aware that they have had rheumatism; for in childhood the articular manifestations are often so slight that the patient is not compelled to lay up, and the presence of a cardiac lesion is not even suspected.

If the systolic murmur replaces entirely or greatly modifies the first sound, we may infer that the lesion is severe, inasmuch as the intraventricular pressure is so reduced by the regurgitation through the mitral orifice that it is insufficient to make the muscular wall of the ventricle, as it suddenly contracts down, taut enough to generate a first sound. Conse-

quently, we shall not expect efficient compensation, and slight exertion will be liable to produce symptoms.

One of the dangers to be apprehended in the future in cases of mitral incompetence, which should make our prognosis guarded even in apparently favourable cases, is the possibility of the onset of mitral stenosis, and my impression is that in many cases the patient who has had mitral incompetence for some years, it may be, only comes up for medical advice when mitral stenosis has set in, and symptoms attributable to that affection compel his attention.

ART. XIII.—*Report on an Outbreak of Typhoid Fever caused by Infected Milk.* By SIR CHARLES A. CAMERON, C.B., M.D., F.R.C.S.I., F.I.C.; Medical Superintendent Officer of Health for Dublin.

ON Monday, September 28, 1908, I received six notifications of typhoid fever from Clontarf. Two were sent from Dr. M. S. McIntosh, and referred to a female, aged twenty, residing in Hollybrook Road, and a girl, four years old, living at Belvoir Terrace, Dollymount. From Dr. John O'Donoghue, District Medical Officer of Health, came four notifications of typhoid fever, as follow:—A girl, five years old, in Castle Avenue; an adult female in Haddon Road; a girl, three years of age, in Victoria Road; and a girl, five years old, in Haddon Road. Dr. O'Donoghue observed that these cases occurred in houses supplied with milk from the same dairy.

On September 30 a case of typhoid fever in Howth Road, an adult male, was notified by Dr. W. R. Lemon. On October 1 five cases of the disease in Castle Avenue, Haddon Road, St. Joseph's Square, and St. Lawrence Road were notified by Doctors O'Donoghue, McIntosh, and Hopkins. On inquiry I found that the houses in which these patients were located were supplied with milk from the same dairy as that from which milk was procured by the occupants of the houses from which the first six notifications were received. The following

shows the dates on which the first few notifications were received :—

Date	No. of Cases
Monday, September 28, 1908 ...	... 6
Tuesday, September 29, 1908 ...	... nil
Wednesday, September 30, 1908	... 1
Thursday, October 1, 1908 ...	... 5

The dairy, which I shall now and further on refer to as the "suspected dairy," supplied a very large number of houses in Clontarf. It might at first appear as if the supply of milk to, and the appearance of typhoid fever in, the same house was only a coincidence, but as case after case was notified, and when, on inquiry, in every instance it was found that the patient's dwelling was supplied with milk from this dairy, the inference that the milk was infected became irresistible.

Examination of the Dairy.—On the day the first notifications were received a Sanitary Inspector visited the dairy, and reported that he found no one ill in it, and nothing on the view that would account for the infection of the milk. Next day Mr. Andrew Watson, M.R.C.V.S., inspected the dairy, and examined the cows. His report was that the dairy and its utensils were very clean, and that the cows were free from disease, and were in a cleanly condition. Four samples of the milk from the dairy were obtained—one from the dairy and the others from customers—and all were found to be free from typhoid bacilli. These micro-organisms have rarely been detected in cases where milk was undoubtedly the vehicle of enteric fever poison.

On Wednesday I made a prolonged inspection of the dairy. The owner was present, also his wife, son and three daughters. None of them exhibited any sign of recent illness, and all declared that they had not suffered from sickness for a long time. The workmen engaged in the milking of the cows and distributing the milk were a man and his son, another man, and the proprietor's son. The first three named were chiefly engaged in milking cows out at pasture. The three workmen whom I examined and interrogated several times protested

that they never had had typhoid fever, and had not recently been ill.

On October 3 I received a certificate from Dr. Sheppard stating that he had examined all the persons connected with the dairy and found that they were free from disease. As medical attendant of the family he could say that none of them had typhoid fever.

The cows of the dairy numbered 58—13 of them were within the curtilage of the dairy, some were in a field near the upper part of Vernon Avenue, and the rest were on pastures abutting on Mount Prospect Road. The family of the owners of the dairy resided in one of a terrace of eight houses, at the rere of which there were two large yards communicating with each other. A door gave entrance to the basement story of the dwelling, and in this basement story there was a small apartment in which milk was stored. People came to this door for milk, and, so far as I can learn, generally handed in a vessel for the milk. Some of the milk was sent out by hand, and not in a cart, to customers residing near the dairy. At the rere of the dwelling there was another small milk store. It was situated at a distance of a few feet from a water-closet. On pointing out the closeness of the store to the water-closet it was intimated that the water-closet would be removed if required.

On Thursday, October 1, I had an investigation made as to the drains of the dairy and adjacent houses, and the sewer into which their contents were discharged. In a lane there is a pipe sewer into which the drainage from the dairy and that of several houses close to it are discharged. All the houses have intercepting traps on their cross drains; but the drain from the dairy had neither an interceptor nor a ventilator. There was, moreover, a defect in the water-closet. Notices to remedy these serious defects were at once served, and immediately complied with.

The drainage in the lane referred to passed into the sewer of another lane, and from thence into a main sewer in Vernon Avenue. Of course the want of an interceptor and ventilator was very serious in the case of a drain from a dairy; but even

so I was much more inclined to regard the carriers of the milk as the carriers of the micro-organisms of typhoid fever and the means of spreading the disease. This view was founded chiefly on the fact that most of the milk was distributed from the fields and not from the dairy.

The Pastures.—I visited the pastures on which by far the greater number of the cows were kept. The field at Mount Prospect Road had neither pond nor ditch on it. There was a supply of Vartry pipe water. A huge vessel, full of water, was under the tap. At the bottom of the vessel there were some leaves, which had been blown into it. I took a sample of the water, and examined it, and found nothing deleterious in it. One imperial gallon of this water contained :—

Total Solid Matters	4.200
Including :—	
Albuminoid Ammonia	0.014
Saline Ammonia	0.010
Nitrous Acid	none
Nitric Acid	trace
Chlorine	0.890
Sulphuric Acid	0.7206
Equal to Calcium Sulphate	1.0000
Phosphoric Acid	none
Hardness	2°
Coloured, looked at through a tube two feet long	slight yellow
Odour at 100° F.	none
Suspended Particles	numerous
Turbidity	much
Sediment	slight

Microscopic Examination :—A rather large number of micro-organisms was present, but none of an objectionable character, such as the *B. coli* group, were detected in it.

The slight variation from normal Vartry water was due to the leaves present in the vessel.

At the field near Vernon Avenue there was also a supply of Vartry water. There was a ditch there which contained a little muddy liquid, but the sides of the ditch exhibited

no foot-prints of man or beast. It is incredible that any of the workmen would use, as was suggested, this scanty and filthy liquid instead of the pure Vartry water at hand.

The three workmen were on the pastures at one of my visits. They would not admit having been ill recently. They stated that they brought the milk from the fields direct to the houses they supplied, and not at first to the dairy. The means of straining the milk were on the pastures.

What caused the Outbreak.—I was strongly, at this time, of opinion that in some way, either by having had an attack of typhoid fever or by being in contact with a case of the disease, one or more of the milkers were carriers of the micro-organisms of the fever. I was rather strengthened in this view by the fact that very few of the earlier cases of the malady occurred amongst the people who got the milk direct from the dairy or supplied to them by hand; it was the houses supplied direct from the fields that at first, at least, were infected.

From September 28 to October 5 there were 42 notifications of typhoid fever, and of these only one was in a house not supplied from a cart. No doubt, by far the larger proportion of the milk came from the fields; but, dealing with the whole epidemic, the milk from the dairy appeared to do less mischief than that from the fields.

Means taken to Prevent the Spread of the Epidemic.—The milk from the dairy and specimens supplied by it to houses in Clontarf were examined bacteriologically, and no micro-organisms characteristic of typhoid fever were found in them. I believe it is rarely, if ever, in the numerous outbreaks of typhoid fever attributed to infected milk that the *B. typhosi* have been detected in the milk.

By far the larger number of the patients were treated at home. This led to large quantities of their excretions passing into the sewers. Both liquid and solid excretions contained myriads of the infective micro-organisms which cause the disease. I, therefore, thought it would be useful to put disinfectants into the sewers, and that the best way to do so would be to pour the disinfectants into the water-closets of the houses, so that the cross drains would also be disinfected.

Accordingly, 805 houses were visited, and disinfecting solutions were poured into the water-closets. Some disinfecting solution was also applied to the foreshore laid bare during the ebb of the tide.

On October 1 I sent the following letter to all the Dublin morning and evening newspapers :—

"PUBLIC HEALTH OFFICE,
"DUBLIN, 1*st October*, 1908.

"*Typhoid Fever in Clontarf.*

"SIR,—Typhoid fever is rather prevalent in Dublin at present, and especially in Clontarf. As a precaution, I would strongly urge upon the residents in that district to see that the drains of their houses are in good order. The use of disinfectants in the drains is desirable. It would be well to boil the milk used, as this liquid is sometimes the vehicle of the poison of typhoid fever.

"I am, Sir,
"Yours faithfully,
"CHARLES A. CAMERON,
"*Medical Officer of Health.*"

At the same time, two Sanitary Officers were sent round all the houses in the infected district to warn the occupants and to ascertain the names of the persons who supplied them with milk. I have the strongest reason to believe that my advice to boil the milk was generally adopted, and this, I have no doubt, was the means of saving many persons from contracting the disease. It must, however, be borne in mind that the virus of typhoid fever takes from ten to fourteen days, or even longer, to develop the disease, and even after development the first symptoms are not always serious, and do not attract much attention. There are by no means few instances in which the infected person does not take to his bed, but goes about his business. This is what is termed ambulatory typhoid fever. Before any warning could be given, the disease germs were multiplying in the systems of scores of people in Clontarf.

I requested the proprietor of the dairy to remove for a while the persons who were engaged in milking the cows and distributing the milk, but the request was refused. I

procured specimens of the urine of the three workmen, and submitted them to Professor McWeeney for bacteriological examination. He reported that the result was negative. I then verbally, and subsequently in writing, suggested to the proprietor of the dairy that he should get an eminent bacteriologist—Professor McWeeney, for example—to examine all the persons connected with the dairy, in order to determine were any of them carriers of the bacilli of enteric fever. My idea was that the excretions should be examined and the Widal blood test employed. Professor McWeeney's services were obtained, as were also those of Professor Mettam, Principal of the Veterinary College. Although repeatedly asked for, I have not been informed as to the results of those gentlemen's investigations.

It is well established that convalescents from enteric fever, and even persons long completely recovered from that malady, continue to discharge in their excretions the micro-organisms which cause the disease. Cases are on record showing that even after several years have elapsed, the Widal reaction and the bacteriological examination of the fæces indicate the presence of the bacilli. It is rather significant that after the experiments of Dr. McWeeney and of Professor Mettam had been concluded, one of the three men who were milkers, and two of them distributors of the milk, was taken from dairy work and transferred to other employment.

Various causes assigned for the Fever Outbreak.—The owner of the suspected dairy regarded himself as a much-injured individual, and could not believe that his milk caused the outbreak of fever. Some persons assigned to the emanations from the Fairview sloblands the cause of the epidemic. These sloblands are in course of reclamation by the deposition thereon of street sweepings and other refuse of unobjectionable nature. Usually there is no unpleasant odour noticeable from the refuse; but in September large quantities of vegetable refuse from the city markets were deposited on the sloblands, and the weather being warm at the time the vegetable matter soon began to decompose and produce a bad odour. It is, however, clear that the emanations from the sloblands had no

connection whatever with the typhoid outbreak. In Fairview itself there was not one case of typhoid fever. No man working on the sloblands contracted the disease. With the exception of the upper part of Howth Road, all the cases occurred on the east side of the great embankment of the Great Northern Railway, and remote from Fairview.

The roadway along the Clontarf shore is being opened up in order to lay the sewer into which the sewers of Clontarf are to discharge their contents. This new sewer is to be brought nto communication with the main drainage system of the city. It was alleged that the soil dug up in making the excavations for the sewer might have given off noxious exhalations. The soil was under the roadway, and it was inconceivable how it could possibly contain the characteristic bacilli which cause typhoid fever. I examined the soil and found nothing objectionable in it.

It was alleged that the Corporation opened a sewer close to the suspected dairy, and kept it open for several days, and that from that sewer noxious exhalations proceeded. It was also alleged that "black stuff" was taken out of the sewer and placed on the surface of the land. Mr. Brady, who acted as solicitor for the owner of the dairy, said to me that if the milk was really infected it must have been by the exhalations from this sewer or stuff out of it. Reference to this sewer and black stuff will be found further on.

Progress of the Epidemic up to November 2, 1908.—The area affected by the epidemic contained 748 houses; of these 193 were supplied with milk from one dairy, and 555 from 28 other dairies. Eighty-two of the houses were invaded by typhoid fever and 127 of the inmates became victims of the disease. Seventy-nine of the 82 houses were supplied with milk from the suspected dairy—that which supplied 193 of the houses. The remaining three houses had a supply of milk from three other sources. One of these houses—a cottage—was occupied by a charwoman, and she developed typhoid fever. She, however, worked and obtained food in one of the 79 houses in which there were cases of typhoid. Another of the three houses got

milk in the morning from a dairy which was not the suspected one. On close inquiry, the lady who owned the house stated that she also often got milk in the evening from the suspected dairy. The third house obtained milk from a dairy which was not the suspected one; but it has been proved to demonstration that on several occasions the owner of this dairy procured milk from the suspected dairy, and some of it was supplied to the house last referred to. There is the clearest evidence that the 127 persons affected with the disease used milk supplied from the suspected dairy. This was the state of things up to November 2, 1908.

If the outbreak of typhoid fever was not due to infected milk, what would be the chances that all the cases would occur in the 193 houses supplied with milk from the suspected dairy out of the 748 houses? Not one in many millions. In 1878 and the early part of 1879 I investigated an outbreak of typhoid fever in Dublin, in which there were 67 cases and 6 deaths. Besides the evidence of fever in the dairy, I came to the conclusion that the milk was infected by employing the theory of probabilities. The suspected milk was supplied by a dairy, which I designated x, to 25 of the 120 houses in Fitzwilliam Square, Raglan Road and Elgin Road. Twenty-five other dairies supplied the remaining 95 houses. Cases of typhoid fever occurred in 14 of the houses. Now, assuming that milk had nothing to do with the outbreak, what were the chances that the milk from x dairy would supply one of the 14 houses, or, say, what would be the chance of one case of the disease occurring in one of x houses? The probability of—

$$\text{One case} \quad - \quad - \quad = \frac{25}{120} \quad (1)$$

$$\text{A second case} \quad = \frac{24}{119} \quad (2)$$

The probability of one event is $1 : 4\frac{4}{5}$.

The probability of *both* events $1 : 23\frac{1}{3}$.

Worked out in this way, I found that the probability or chance of x supplying all the 14 houses was one chance in

150, 180, 296, 639 chances. The chance that the 127 cases of fever in Clontarf should all occur in the houses supplied by the suspected milk is even much less than that in the x milk outbreak.

Mr. James Brady, solicitor for the owner of the suspected dairy, made an application to the Local Government Board to hold a sworn inquiry into the cause of the epidemic, but the Board declined the application. Mr. Brady subsequently applied to the King's Bench for a *mandamus* compelling the Local Government Board to hold the inquiry, but he withdrew the application. It is rather significant that the withdrawal was made after Dr. McWeeney's examination had been carried out.

Legal Action.—When satisfied that the outbreak appeared to be due to infected milk, the question arose—How should action be taken to restrain the sale of it? If a case of fever had been found in the dairy, or that any person connected with it was, or had been, recently ill, the Public Health Acts and the Dairies and Cowsheds Orders could be employed for the purpose. In the absence of any knowledge of disease in connection with any one in the dairy, I consulted the Law Agent of the Corporation on the subject. He was of opinion that in the existing state of the law no legal action could be taken. The Assistant Law Agent was of the same opinion.

Some time after the expression of the Law Agent's opinion I received the following letter from the Local Government Board:—

"LOCAL GOVERNMENT BOARD,
"DUBLIN, *6th October*, 1908.

"No. 55,017 : 1908.

"Dublin County Borough.

"SIR,

"I am directed by the Local Government Board for Ireland to acknowledge the receipt of your letter of yesterday's date relative to an outbreak of typhoid fever at Clontarf, and I am to state that, having regard to the observation in your letter that 'in all the cases the milk used by the patients was supplied from the same dairy,' the Board presume that you have taken

action under Section 4 of the Infectious Disease (Prevention) Act, 1890.

"I am, at the same time, to draw your attention to the provisions of Section 53 of the Public Health Acts Amendment Act, 1907, and of Article 21 of the Dairies, Cowsheds and Milkshops (Ireland) Order of 1908.

"I am, Sir,
"Your obedient servant,
"A. R. BARLAS, *Secretary*.

"Sir C. A. Cameron, C.B.,
"Medical Superintendent Officer of Health,
"Municipal Buildings, Dublin."

I informed the Local Government Board that the Corporation law officers were of opinion that no legal action could be taken in the matter.

Subsequently the Local Government Board expressed an opinion that the Public Health Committee should consult senior counsel on the subject. This was accordingly done, and the case for counsel's opinion was stated by Mr. Rice, the Corporation Law Adviser, as follows:—

"Counsel will please advise:—

"(1) Has the Corporation or the Public Health Committee power under the Infectious Disease (Prevention) Act, 1890, or otherwise, to interfere with the sale of milk by the owner of the suspected dairy?

"(2) In case the Corporation makes such an order as that referred to in Section 4 of the Act in question, would it be a good order under the circumstances?

"See opinion below.

"(3) If such an order is made and is afterwards held to be *ultra vires*, would the dairy owner have a cause of action against the Corporation for making the order, or against the individual members who acted in the matter?

"(4) In view of the fact that there was no direct evidence to show that the milk of this dairy caused and is causing the spread of typhoid in the district, can the Corpora-

tion take any step to compel the owner to discontinue the supply of milk in the district of the City of Dublin ?

" And counsel's general advice is requested.

" IGNATIUS JNO. RICE,

" City Hall, Dublin,

" *October* 21*st*, 1908."

Mr. Ignatius O'Brien, K.C., to whom this case was given, gave the following opinion :—

" The 4th section of the Act of 1890 is highly penal, and must be construed strictly. It is manifest, on careful examination, that it contemplated a condition of things where it could be clearly shown either that the milk supplied from a dairy was itself polluted, or while under the control of the dairyman was liable to an ascertained cause of infection. This is shown clearly to my mind by the provision towards the end of the section that the order made by a local authority must be withdrawn if it is established that the milk supply has been changed, or that the cause of infection has been removed. It might be suggested that the general nature of the words, ' changing milk supply,' shows that the section was intended to cover a case where it was impossible to prove affirmatively that the milk itself was polluted ; but this, in my judgment, is not the true construction of the section. It is clear to my mind that the inspection which is to take place under the first part of the question must disclose some physical fact which can be pointed to either as showing the existence of infected milk or such handling of the milk as would be liable to produce infection. I do not mean handling within the dairy itself ; that it might be so but for the provision as to removing the cause of infection. I have inquired what the dairy in the present case is, and I am informed that so far as registration is concerned it is only the dairy at No. 6 Vernon Avenue. Sir Charles Cameron's report is perfectly clear that he cannot trace any cause of infection from milk supplied at 6 Vernon Avenue which would justify him in saying that the fault lies there ; on the contrary, he says that all the cases of infection are traceable to the supply from certain fields which do not appear to form part of the registered premises. These fields may constitute a dairy within the meaning of the Act, but it is clear that any order which could be made must be confined to these fields. So far as the dairy proper goes, I see

no ground on which any order could be justified. Treating the fields as being the dairy, it becomes at once clear that the application of the section to the facts of the present case is a matter of some difficulty. I doubt if it is adequate at all to deal with the position where the whole matter rests on a scientific presumption, not based upon any ascertained fact, but a probability. The section, in my opinion, requires something more than this. It requires affirmative evidence of infection or cause of infection to the milk. I do not think the evidence which the Medical Officer of Health is to possess must be such technical evidence as would be required, let us say, in an action for damages for supplying infected milk. The Medical Officer of Health is not a lawyer, but a scientific man, and he is entitled and bound to place before his Board such facts as induce him to come to the conclusion that the section should be put in force; but when the dairyman comes to show cause against the order, the local authority is, in my opinion, bound to consider all the facts quite irrespective of the medical officer. How can it make an order unless it finds the existence of a state of facts in respect of which the dairyman can says afterwards, 'I have removed the cause of infection,' or 'I have changed the milk supply'? It is difficult to see what change can be ordered in the supply of milk, when the milk supplied is shown to be unpolluted so far as the source is concerned. Suppose all the cows were removed and new cows brought in, the order, if made, would have to be discharged because the milk supply had been changed, while the source of infection, whatever it would be, remained; and, on the other hand, you cannot remove a source of infection which no man can put his finger on. Therefore, it appears to me that, if the Corporation comes to deal with this case in its quasi-judicial capacity, there is no evidence on which it ought to act, and, owing to the manner in which the section is drafted, any evidence on which they could act. If I be right that there is no evidence in the latter sense, their order could be quashed. If, however, I be wrong in this, and they have acted on what is legally evidence, then, of course, the order would not be quashed on *certiorari*. I only express my own opinion on a matter of great doubt.

"A recent case which was decided by the English Courts explains my meaning. A man while being shaved received in the barber's shop a cut from the razor which set up disease. Evidence was admitted that a number of other people had received similar cuts,

and that the same disease resulted; but the evidence was only held to be legal, because it was first established that it was in itself a negligent act not to disinfect razors, and that other instances were admissible to show continuous disregard of this sanitary precaution. But if it had been established that there was a habitual regard for sanitary precautions, this evidence would hardly be admissible.

"I believe the section has been practically a dead letter, as it is cumbersome, though, of course, the jurisdiction to set it in motion undoubtedly exists. Legislative interference with the law is essential if a case like the present is to be dealt with.

"2. I have explained my position with regard to this above. I think it would be a bad order, but it is quite possible that a Court might hold that legal evidence was not contemplated at all; but in this view I could not agree until a Court decides it.

"3. This question does not appear to me to arise, being based entirely upon the assumption that the Corporation act in a manner that, to my mind, would not be legally justifiable. The position of the Corporation would be analogous to that of Justices.

"4. I am not aware of any special powers except these in the 4th Section.

"IGNATIUS J. O'BRIEN,
"6 Lower Merrion Street,
"Dublin, 22/10/'08."

The Local Government Board subsequently suggested that it would be desirable to obtain a further opinion on the subject, and forwarded one of Mr. Vanston, K.C., to the Law Adviser.

Mr. Rice sent me the following:—

"Law Agent's Office, City Hall,
"Dublin, 2*nd December*, 1908.

"*Enclosures.*

"Sir Charles Cameron, C.B.,
"Chief Executive Medical Officer of Health.
"*Infectious Diseases Prevention Act.*

"Dear Sir Charles,

"I enclose you a letter received from Surgeon-Col. Edgar Flinn, with a copy of the opinion of Dr. Vanston on this matter. I also send you a copy of a letter received by me from Mr. Ignatius O'Brien, K.C., after reading Dr. Vanston's opinion.

"I do not see how, under the circumstances, the Corporation would be justified in expending more money in taking legal opinion on the subject, as, after all, if the Local Government Board think a further legal opinion is necessary, it ought to take it on its own part, the Corporation being, I am sure, satisfied with the opinion which it has received and paid for.

"IGNATIUS JNO. RICE."

"10 Lansdowne Road,
"Dublin, *November 16th*, 1908.

"Dear Mr. Rice,

"With reference to my interview with you I enclose you copy of Dr. Vanston's opinion.

"Although with the abatement of the outbreak of enteric fever at Clontarf, the circumstances of the case are now of less immediate practical interest, it is, however, most essential that the powers of the Corporation should be clearly defined with a view to dealing with similar outbreaks in future.

"In view of the great importance of the question, would it not be very desirable and necessary to obtain further advice on the matter?

"Yours faithfully,
"D. EDGAR FLINN."

"No. 59,605 : 1908.
"Dublin County Borough.

"*Copy of Dr. Vanston's Opinion, dated 9th November*, 1908.

"The case is one of much difficulty and doubt, but my own opinion is that a Court could, under the terms of the section, and would in the circumstances, construe the section so as to bring the case within it, having regard especially to the paramount object of the section, and of the entire Act being the preservation of the health of the community by preventing the spread of disease. I do not agree with counsel that the section must necessarily be construed in the very strict way in which he looks at it. It is entirely remedial as regards the public, though penal as regards the dairyman, and should be construed with reference to the true meaning and real intention of the legislation, which was to prevent the spread of disease."

(*Copy.*)

"LAW LIBRARY, FOUR COURTS,
"DUBLIN, 26*th November*, 1908.

"DEAR MR. RICE,

"I have read the opinion of Dr. Vanston, K.C., which you have sent me, with reference to the question of dairies and inquiries by the Corporation. I cannot concur in his view or alter my own, and I may add that, quite apart from the merely technical grounds on which I based my opinion, I think the section is a very unworkable one.

"Yours faithfully,
"IGNATIUS J. O'BRIEN.

"Ignatius Jno. Rice, Esq.,
"Law Agent, Dublin Corporation."

The Public Health Committee took no further action in the matter. It is clear that further legislation is required in reference to disease caused by infected milk.

A Case of Fever in St. Joseph's Square.—Surgeon-Colonel Flinn, Medical Inspector of the Local Government Board, from almost the very beginning of the outbreak spent a considerable amount of time in the investigation of it. In conversation with a medical man, who had notified several cases of typhoid fever, the latter mentioned that he had attended a sick child some weeks before in a house in St. Joseph's Square. Surgeon-Colonel Flinn called at the house and saw the sick child, and in conversation with its mother the latter informed him that she had had an attack of typhoid fever, beginning early in August and ending in the early part of September of the present year. My attention having been drawn to this circumstance, and knowing that the case had not been notified, I visited the woman and questioned her. She said that the doctor told her that she had typhoid fever. She was attended to during her illness by her two sisters-in-law. I visited them, and the elder of them said that she did not hear the doctor state the nature of her sister's illness, but her sister told her that the doctor had informed her that she had typhoid fever. I wrote to the doctor for an explanation why he had not notified the case, and in reply he stated that

he had a "complete answer" to make. The question of prosecuting him under the provisions of the Infectious Diseases Notification Act came before the Public Health Committee. The doctor attended before the Committee, and his explanation was that he was not certain that the case was really enteric fever, as the most characteristic symptoms, such as enlargement of the spleen, diarrhœa, and continuous high temperature, were absent. The Committee did not decide to prosecute him. On a subsequent occasion, and in reference to a communication from the Local Government Board, the Committee again discussed the question of a prosecution in this case, and on a division decided not to prosecute in the case.

The discovery that what might, at least, have been a case of enteric fever in St. Joseph's Square before the outbreak of the disease was important from the circumstance that the house in which it occurred was separated from the suspected dairy only by a wall. During the patient's illness milk was sent for three times daily from the patient's house to the suspected dairy. I interrogated the two girls who went for the milk, and they stated they merely went to the door of the basement story and handed in a jug. Was it possible that this jug contaminated the milk to such an extent as to account for the great and widespread outbreak of typhoid fever? It might be possible, but it is extremely unlikely. Could the micro-organisms of the disease have been wafted over the wall of the rere of the house in St. Joseph's Square into the milk vessels of the dairy? This would be still more unlikely. Besides, the yard in which the milk vessels were washed was not next to the rere of the house in St. Joseph's Square. If milk, the case of fever in St. Joseph's Square began in the first week in August, and the patient was convalescent in the first week in September. Supposing that her excretions were the cause of the outbreak, it is strange that no cases of typhoid fever occurred until late in September.

Almost from the beginning of the outbreak I strongly suspected that one or more of the men who milked the cows and distributed the milk were carriers of the typhoid bacilli. That is still my opinion. When my request to supersede

these men was refused by the owner of the dairy, I suggested, at first verbally, and subsequently in writing, that they should be examined by a bacteriologist. Professor McWeeney's services were obtained, and I am informed that he made the necessary examinations. On speaking to him on the subject he said he could not inform me what the results of his examinations were, as he was obliged to regard them as confidential. Neither the owner of the suspected dairy nor his solicitor could be induced to give me any information on the subject. The examination was made, I believe, about October 17 ; and it is a significant fact that immediately afterwards one of the men whom I suspected, and who no doubt was examined by Professor McWeeney, was taken from the dairy work, and his place supplied by a fresh man. Soon after this event the epidemic died out, except for a few cases, which were the results of antecedent ones, and were not due to infected milk.

Cases not directly due to Infected Milk.—I am satisfied that none of the cases of typhoid fever in Clontarf which occurred after November 2 were due to infected milk, but the greater number of them contracted the disease from patients who had drunk the infected milk. On November 11 two cases were notified from different houses. In both houses there had been milk-infected cases of typhoid fever which no doubt were the causes of the secondary cases.

On November 12 a case was notified from Dollymount. In this house there had been a previous case due to infected milk.

On November 29, a case was notified from Walpole Terrace. From the same house a case had been notified on November 28. A case was notified from Vernon Avenue. As this was a house in which no previous case of typhoid fever had occurred, I visited the house at once. The patient was a child aged six years. His mother informed me that he had not been in any house where there was sickness. There was no reason to suppose that the drainage was in a defective state. On leaving the house I recollected that in the one adjacent there was a typhoid fever patient. On examining the rere of the house I

noticed that the rain-pipe passed directly into the ground instead of delivering the rain over a gully trap. Next day I had the ground opened, when it was discovered that the rain-pipe passed directly and untrapped into the drain, and that there was no interceptor on the drain to prevent currents of air coming into it from the main sewer in Vernon Avenue. Having regard to the experiments of Major Horrocks and Dr. Andrewes, referred to on page 281, I came to the conclusion that the bacteria of typhoid fever could have ascended through the untrapped rain-pipe and been wafted by air currents into the adjoining house. The hopper head of the rain-pipe (or spout) was close to the windows. On December 19 a second case was notified from the "Cottage" in Vernon Avenue.

On November 28 I received a notification that a child in St. Joseph's Square had enteric fever. There had been no illness previously in the house, but Dr. Sheppard, who attended the child (aged four), thinks she probably got infected in playing about the square, in which there had been cases of fever. The child's mother subsequently contracted the disease, apparently by nursing the child.

On December 2 a case was notified from a house in Vernon Avenue. The milk used by the patient (a boy six years old) was taken from cows owned by the family. Dr. Lemon, who attended the patient, thinks that the child might have swallowed the poisonous bacilli from apples which had been stored in a loft to which rats had access. It is well known that rats are the carriers of disease germs, and as the dejections of typhoid fever patients had been largely discharged into Clontarf sewers, some of the infective material might have been carried from the sewers into the loft and transferred to some of the apples.

On December 17 a case was reported from St. John's Terrace. The patient, a man aged sixty years, was treated by Dr. Sheppard. He was a long time—at least five weeks—ill with (as Dr. Sheppard, who attended him, states) the ambulatory form of enteric fever—that is, he did not lie up. He had used milk from the suspected dairy

On December 21 a case was notified from Seafield Road. As the patient had not resided in Clontarf for several weeks until three days before his illness, it was clear that the infection had taken place before he came to Clontarf.

On December 16 a case was notified from St. Joseph's Square. The patient was a girl of fourteen years. She had been a servant in a house in Cabra Villas, near which there had been several cases of typhoid fever.

The cases reported on December 26 I am unable to connect with the infected milk. One of the patients was a charwoman, and worked in various places in Dublin and suburbs. Both patients were practically squatters in the house, which was in a dilapidated condition.

Cases of Typhoid Fever outside Clontarf attributed to the Infected Milk.—Three persons who had resided in Clontarf during the outbreak of typhoid fever, but who left the district before being ill, developed the disease a few days after their departure. Their illness occurred so soon after they had left Clontarf that there is no doubt whatever that the incubation of the disease had commenced in Clontarf. These three cases raise the total number directly attributable to the infected milk to 130.

They had resided in houses to which milk from the suspected dairy had been supplied, and in which cases of enteric fever had occurred.

In conclusion, I have to express my thanks to Dr. O'Donoghue, Medical Officer of Clontarf District, for his early intimation of the fact that several persons who had typhoid fever used milk out of the same dairy, and for much help in connection with the fever outbreak.

How did the Milk become Infected?—It is perfectly clear that the milk supplied from only one of the twenty-nine dairies which dispensed that liquid in Clontarf caused the fever outbreak. It is equally certain that any emanations from the Fairview sloblands, or from the trenches in the roadway made for the purpose of main drainage, had no connection with the outbreak.

I have referred to the possibility of bacilli of typhoid escaping

from the sewer leading from St. Joseph's Square and finding their way into the milk. Admitting that such were the case, it is inexplicable why cases of the disease should have occurred up almost to October. That the milk was extensively infected is shown by the large proportion of the persons who used it contracting the fever. It is inconceivable that the bringing of a jug to the dairy in the month of August and early in September could have caused a large infection of milk. The drain from the dairy, found at the outbreak of the disease to be defective, was promptly put in order. After the first week in October, the drain could not have allowed emanations from the sewer to pass into the dairy premises. The usual period of incubation of enteric fever is eight to twelve days. If the drain was the means of spreading the infection, its effects could not have been continued after the middle of October. There were notified in the two weeks ended on October 23 twenty-six cases, which I had no doubt were due to infected milk. If the epidemic arose out of the case of fever in the house in St. Joseph's Square, sewage emanations seem to be the most likely vehicle of the infecting bacteria. During August the discharges from the patient passed down the sewer, which extended from the square to Vernon Avenue. The sewer was an old-fashioned one, made of stone. At a right angle from the sewer a combined drain extended to the dairy premises. This drain ascended from the sewer; the air of the latter might also ascend, and, from the defective condition of the drainage arrangements in the dairy, mentioned at page 261, might infect the milk in it.

It is alleged that in the month of August, 1908, the sewer from St. Joseph's Square was opened near its junction with the drain from the rere of Vernon Terrace, and that a quantity of "black stuff" was taken out of the sewer and placed on the surface of the lane, where it remained, as alleged, for three or four days. If any portion of this "black stuff," which came from a sewer which conveyed the dejections of a typhoid fever patient, dried, and was carried by the wind into the dairy, the milk in the dairy might become contaminated. The "black stuff" was not allowed to remain long in the lane, and the

infection of the milk must have gone on for a good many days, the interval between the first and last case, undoubtedly due to infected milk, being at least five weeks.

For reasons stated further on I am of opinion that this case of fever, supposing it to have been typhoid fever, was not the cause of the epidemic.

Can Micro-organisms pass into the Air from Sewage?—Numerous experiments have been made to determine the chemical composition of sewer air and the nature and number of the micro-organisms in it. Levy and Miguel found, in 1891, that the sewer air in Paris contained only about half the number of micro-organisms present in the over-ground air. Carnally and Haldane found much smaller numbers of bacteria in the sewers of Westminster, Bristol, and Dundee than were present in fresh air, and they believed that the bacteria in the sewers came into them from the outer air. In reports on the Air of Sewers, made in 1892 and 1893, by J. Parry-Laws, it was stated that (1) the number of micro-organisms in sewer air was smaller than in fresh air; (2) the kinds of micro-organisms in sewer air are the same as those of fresh air; (3) moderate splashing does not affect the nature of the bacterial contents, even within four feet of the disturbance; (4) stagnant and decomposing sewage does not influence the nature of sewer air organisms. The results of these investigations would seem to show that pathogenic micro-organisms could not escape from liquids; therefore, that the emanations from undisturbed sewage did not include bacteria, and that even when agitated the organisms were not detected within four feet from the point of disturbance. If these conclusions were correct it is difficult to account for the fact that emanations from sewers have many a time been proved to have caused disease. It is common knowledge that defective drains permitting the escape of gases into dwellings often cause disease. If the dangerous microbes admittedly occasionally present in sewage cannot escape from the liquid, drains untrapped, unventilated and otherwise defective, cannot be regarded as a means of spreading enteric fever. I never could persuade myself that bacteria could not escape from

liquids. In some experiments which I made some years ago the contrary seemed to me to be proved. I placed dejecta from a typhoid patient in a large glass vessel, communicating through a wide glass tube with another vessel containing milk. The excreta was undergoing decomposition, and in a short time the milk was found to contain *B. typhosi*. The air bubbles formed in the vessel by the decomposition of the excreta carried over into the milk-vessel some of the typhoid bacteria. The vessels were so arranged that air currents could pass through both.

In 1907 Major Horrocks, R.A.M.C., made some interesting experiments which proved that, under certain conditions, bacteria may escape from sewage. He found that liquids placed in a deep jar gave off bubbles, but no bacteria from them reached to a height of four inches—at least no bacteria were received on prepared plates at that distance from the liquids. When the bubble-producing liquid was placed in a trap connected with a vertical pipe, permitting of an air current, then bacteria were detected on plates nine feet above the liquid. Other experiments on a larger scale showed that bubbles rising through stagnant water may eject bacteria, which would be carried off by the air currents passing over the liquid.

Dr. F. W. Andrewes, who was associated with Mr. Parry-Laws in his work on sewer air, was unable to affirm that bacteria escaped from sewage ; but his own later experiments, as well as those of Horrocks, have led him to change his opinion. Major Horrocks has shown that by the splashing of sewage against the upper part of the drain or sewer, matter may be deposited there which, after drying, would be carried by air currents. Such dried matter might contain pathogenic micro-organisms. Dr. Andrewes writes :—" It may be taken as conclusvely proved that under certain circumstances, at all events, sewage gives up its bacteria to sewer and drain air. Such bacteria may form but a small proportion of those present in sewer air ; this is likely, as they would not otherwise have escaped detection by previous observers. But it is probable that the circumstances under which sewage gives up

its bacteria are common and ordinary circumstances in sewer and drain construction."[a]

Amongst many interesting experiments recorded I may mention the following striking one. Prepared plates to catch bacteria were placed on the top of a 6-inch ventilating pipe, connected with a water-closet in the basement. An emulsion rich in a well-known microbe (*Bacterium prodigiosum*) was placed in the water-closet, and the closet was flushed. At the end of forty-eight hours the prepared plates, which had been removed from the pipe and incubated, were found to contain the microbes. In this case the microbes were brought up to a height of fifty feet from the water-closet.

I have described Major Horrock's and Dr. Andrewes' investigations, especially because they illustrate the way in which a case of typhoid fever in Clontarf was probably caused.

Ages of the Patients.—I assume that all the patients whose cases were notified up to and including November 2 contracted the disease from infected milk. These cases numbered 127. There were fifteen cases notified subsequently, extending to December 24. These appear to be, with two or three exceptions, clearly due to antecedent cases of the disease. The total number of cases was 142.

The following were the ascertained ages of 137 of the patients:—

	Males	Females	Total
Under five years	8	11	19
Five and under ten years	13	13	26
Ten and under fifteen years ...	8	10	18
Fifteen and under twenty years ...	6	6	12
Twenty years and upwards ...	22	40	62
	57	80	137

The ages of twelve of the oldest patients ranged from forty to sixty years.

[a] Page 204 of the Thirty-sixth Annual Report of the Local Government Board (England), 1906-7, Supplement containing Report of the Medical Officer for 1906-7. London, 1903.

Case Mortality of the Disease.—The usual mortality in typhoid fever cases is one death in ten cases; but it is sometimes higher and lower than this rate. In a milk-borne epidemic, which I investigated in Dublin in 1879, and which is recorded in the Corporation Reports, there were sixty-three cases and six deaths. In the Clontarf epidemic there have been, up to the present, only seven deaths.

Was Raw Milk always the Cause of the Disease?—I interrogated ten of the 127 patients as to whether or not they drank the milk uncooked; they all replied that it was sometimes unheated. It is, however, unlikely that all the 127 patients drank raw milk; some of them must have taken it only in tea or in puddings. The temperature of tea is not sufficiently high to ensure the destruction of the bacilli of typhoid fever.

CASES OF ENTERIC FEVER NOTIFIED IN THE CITY OF DUBLIN EACH MONTH FROM 1ST JANUARY, 1908, TO THE 2ND JANUARY, 1909

Month of	North Dublin	South Dublin	Clontarf and part of Howth	Drumcondra and Coolock	Glasnevin and part of Finglas	Kilmainham	TOTAL
January ...	6	11	—	1	1	—	19
February ...	11	10	1	1	1	3	27
March ...	7	10	1	3	—	1	22
April ...	7	4	—	—	—	2	13
May ...	9	11	—	3	—	1	24
June ...	8	9	—	1	—	—	18
July ...	10	7	1	2	—	—	20
August ...	19	41	—	1	—	1	62
September ...	16	40	7	—	—	1	57
October ...	45	40	119	2	1	10	225
November ...	18	21	7	2	1	4	53
December ...	18	38	9	—	—	4	69
Total ...	174	242	145	16	4	27	609
Population ...	131,407	139,391	5,269	11,382	7,534	8,891	303,874

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Guy's Hospital Reports. Volume LXII. Edited by F. J Steward and Herbert French. London: J. & A. Churchill. 1908.

This report will maintain the traditions of Guy's Hospital. It contains ten original articles, all of which are of a high standard of merit. Dr. Palmer contributes an important paper on Myasthenia Gravis, which includes an account of two cases which had come under his own observation, and in which the symptomatology and pathology of the disease as determined from an extensive analysis of the cases that have been reported in the literature is exhaustively discussed. Mann records the results of a series of observations on the arterial blood pressure in health and disease. Perhaps his most interesting observation is the fact that the phenomenon of " second wind " is accompanied by a rise in diastolic blood pressure, with a disappearance of the high, irregular, systolic readings which prevail during the earlier stages of muscular exertion in the case of untrained individuals. Many other important conclusions are also arrived at, and amongst these we may mention that he has found that strychnin and digitalis produce greater effects on the arterial blood pressure than other cardiac stimulants when administered in cases of cardiac disease. A case of Milroy's disease is also recorded. In addition to the persistent œdema, the case was characterised by acute exacerbations of unusual severity. These acute attacks appear to have been a special character of the disease as met with in the family to whom the patient described in this paper belonged, as a history of similar attacks was obtained from other members who were affected with the disease. Fagge and Mann report a successful case of excision of a ruptured but otherwise healthy spleen. Two years after the operation the patient was in perfect health, and

showed no lymphatic enlargement, and practically no blood changes, a result which the authors are inclined to ascribe to the presence of a small accessory spleen, which had been seen during the operation, and which had been left undisturbed. Another interesting surgical paper deals with a case of Jacksonian epilepsy in which a cyst was removed from the neighbourhood of an abnormally placed Rolandic fissure, after a previous operation performed elsewhere over the ordinary site had failed to reveal either the cyst or the anatomical abnormality. The remaining papers include one on embryology by Assheton, an account of peritoneal adhesions met with in fifty consecutive *post-mortems*, a short paper on pads on the finger-joints by Hale White, a study of the results of gastro-enterostomy in gastric ulceration, and some observations on splenomegalic polycythæmia.

Heart Disease and Thoracic Aneurysm. By F. J. Poynton, M.D., F.R.C.P. London; Assistant Physician to University College Hospital, and Physician to Out-Patients, the Hospital for Sick Children, Great Ormond Street, London; late Medical Tutor and Medical Registrar to St. Mary's Hospital. London: Henry Frowde and Hodder & Stoughton. The Oxford Medical Publications. 1907. Cr. 8vo. Pp x + 310.

An apology is due, and is hereby given, to the author and publishers of this book for the long delay which has taken place in reviewing it. The error was one of omission not one of commission and we regret that it should have occurred.

An introductory chapter on the anatomy and physiology of the heart and experimental cardiac pathology is followed by a full account of the general principles of clinical investigation in heart disease. Some points are left unexplained. For example, in alluding to "Pulsus paradoxus" Dr. Poynton contents himself with stating that such a pulse points to some weakness in the heart's contraction, which permits inspiration to influence unduly the ventricular systole. He says—"It may be met with, for example, in general pericardial and mediastinal ad-

hesion" (page 70). In Eulenberg's "Real-Encyclopädie" (Art. "Pericarditis"), an experiment is described which throws light on the causation of this curious physical sign. Rosenbach introduced an air-ball into the right pleura and so adjusted it as to compress the inferior vena cava as it passed through the diaphragm. The "Pulsus paradoxus" was produced in its most typical form. We are reminded by Dr. F. T. Roberts, in his article on "Diseases of the Pericardium" in Allbutt's "System of Medicine" (Vol. V., page 727), that "the inferior vena cava passes through the floor of the pericardium to reach the heart, which is tethered to the sac by the attachment of the vessel to the foramen quadratum in the central tendon of the diaphragm." This relation of parts lends countenance to Rosenbach's interpretation of the paradoxical pulse.

Three chapters—V., VI., and VII.—are devoted to the pathology, symptoms, and treatment of "acute rheumatic heart disease." The author's intention is to provide one complete picture of rheumatic morbus cordis rather than sketches of the isolated lesions of pericarditis and endocarditis. Dr. Poynton regards rheumatic heart disease as the type of a cardiac infection, the special infecting agent being the *Diplococcus rheumaticus*. "This micrococcus makes its way into the system from the *tonsils*, which are frequently found either actively inflamed or unhealthy in acute rheumatism. There are probably *other sites* of infection, but this one only has been conclusively demonstrated" (page 81). This is rather dogmatic, and the author feels it to be so, for he adds—"Should, however, the reader be unable to accept the diplococcus, the facts that are here stated will still hold good, and he will only need to apply some other interpretation—if such exists—in explanation of their occurrence."

In subsequent chapters the subjects discussed are—chronic valvular disease and its treatment, non-rheumatic pericarditis, acute non-rheumatic endocarditis, myocardial affections, neuro-muscular affections, congenital heart-disease, arterial disease and aneurysm.

In general the information given in this book is entirely reliable, but we cannot endorse the statement that

functional systolic murmurs heard at the base of the heart, when compared with the systolic murmurs of aortic stenosis, "are less harsh, do not produce a systolic thrill, and are not conducted into the vessels of the neck."

In an appendix a number of prescriptions for cardiac disease are given, as well as some diets suitable for heart cases. There is also a brief account of the Schott movements, followed by receipts for artificial Nauheim baths.

The book is well and very fully illustrated both by means of figures in the text and by seventeen plates. The work is one which can safely be put into the hands of a medical student who has begun his hospital attendance. He should keep it beside him and refer to its pages whenever he meets with a heart-case in the hospital wards.

Diseases of the Throat, Nose and Ear. By William Lamb, M.D., C.M. Edin.; M.R.C.P. Lond. Second Edition. London: Baillière, Tindall & Cox. 1909.

It is with considerable pleasure that we welcome a second edition of Dr. Lamb's excellent little book.

When we were reviewing the first edition the opinion was expressed that short notes on treatment would have added very much to the utility of the book, and in the edition now before us we find this omission corrected, and, in consequence, the title of the book has been slightly altered.

The main outlines present in the last edition are still adhered to. They form a most convenient way for a beginner to study the various diseases, as each region has its own diseases grouped together, somewhat in the way that one would do in describing the differential diagnosis of two or more affections. The added notes on treatment are good. The author also has succeeded, as seldom is the case, in restraining himself from describing the rarer operations which are practically performed only by specialists, and has given all his space to such descriptions as would prove useful to one who is not in a position to be a specialist. For instance, he mentions Killian's operation on the frontal sinus, and then merely gives a reference as

to where the original description of that operation may be found. Exception must be taken to his advice to use chloride of ethyl as an anæsthetic for adenoids, as by far the larger number of operators use, to the exclusion of all other anæsthetics, nitrous oxide gas and ether. The addition of a formulary at the end of the book will certainly prove of use.

Fourth Annual Report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. Feb. 1, 1906, to Feb. 1, 1907. Philadelphia. 1908. Pp. 430.

The Fourth Annual Report of the Henry Phipps Institute at Philadelphia, like its predecessors, is a record of work well done in the wide field of the study, treatment and prevention of tuberculosis.

Dr. Lawrence F. Flick contributes the clinical and sociological report of the year. Better system and greater accuracy, the results of experience, together with the ever-increasing number of cases dealt with, render the statistics more valuable as time goes on. The Institute now has records of nearly five thousand cases, and with the increase in the number of persons under observation, error in deductions decreases. In 1900 the population of Philadelphia of foreign parentage was 709,433, or 54.83 per cent. of the total population. Of this number 414,093, or 32 per cent. of the total population, were native born whites of foreign parentage, and 295,314, or 22.83 per cent. of the total population, were foreign born whites of foreign parentage. It may be that there has been some increase since 1900 in the population of foreign parentage, but if so the increase has not been large.

The native population of Philadelphia of native parentage is approximately 45.1 per cent. of the total population; the native population of native parentage which applied to the Institute for treatment is 30.92 per cent of the total number of persons who have applied. Dr. Flick, after making allowance for the discrepancy which may arise from the location of the Institute in the part of the city which has the largest foreign population, believes that the native of native parentage either has a greater resistance to tuberculosis

or is better able to take care of himself than the foreigner or native of foreign parentage. We believe that he is right in attributing much of the incidence amongst the foreigners to the housing of the immigrant in infected houses, and to the hardships which go with finding a foothold in a new country. The foreign born patients were natives of the following countries—from the highest number down—Russia, Ireland, Germany, Italy, England, Austria, Hungary, Poland and Roumania. Scotland, which in the third report stood after Austria, has fallen out of the rank of countries worthy of mention in this connection. There are no figures given showing the relative proportion of natives of these several countries to the total foreign born population, and in consequence their enumeration is of less value than it would have been had fuller statistics been recorded. Dr. Flick states that while the Jews have a very low mortality from tuberculosis, the statistics of the Institute show a high morbidity amongst the population of that race. The perusal of the figures given are an interesting sidelight on the burden which the United States assumes in assimilating its foreign population.

Another problem which is also touched on is that of colour. The negro population of Philadelphia is about 70,000, approximately 6 per cent. of the total population. The number of coloured people who came for treatment during the year constituted nearly 10 per cent. of the total number of patients, which, it is stated, probably represents the correct ratio of tuberculous negroes to tuberculous white people in Philadelphia.

We note that in the report before us in the classification of occupations a column has been introduced showing the number of people following the occupation in Philadelphia according to the United States Census of 1900. This greatly increases the value of the tables given, and justifies the statement that hardship and deprivation are pointed to very strongly as two important factors in the implantation and development of tuberculosis, while outdoor and indoor life seem to play a secondary part to these. The sewing-machine operator, who undergoes physical fatigue under bad sanitary environment, and whose compensation is insufficient for maintenance of nutrition, stands at the head of the list, and

the policeman, who has an easy life out of doors, with fair compensation, stands at the foot of the list. Practically all occupations which involve severe physical effort, even when they are out of doors, have a high attendance rate.

This section of the report is of real interest to the general public and the sociologist. The rest of the volume consists of reports of special branches of the tuberculosis problem, contributed by members of the staff of the Institute.

We miss records of public lectures, a leading fature of the first Report, to which the contributions of Trudeau, Osler, and Herrmann Biggs were a delightful and instructive addition.

A *Manual of Infectious Diseases.* By E. W. GOODALL, M.D. Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylums Board, formerly Medical Registrar to Guy's Hospital; and J. W. WASHBOURN, C.M.G., M.D. Lond., F.R.C.P., late Physician to Guy's Hospital, and Lecturer in the Medical School, Physician to the London Fever Hospital, and Consulting Physician to His Majesty's Forces in South Africa. Second Edition, revised and enlarged. By E. W. GOODALL. London: H. K. Lewis. 1908. 8vo. Pp. xii + 426.

In December, 1896, we recommended the first edition of this manual to students of fever, who were still medical students, for whom it was professedly designed. That edition was the joint work of Dr. Goodall and of Dr. Washbourn. The lamented death of the latter on June 20th, 1902, has thrown on Dr. Goodall the burden of preparing, single-handed, the present edition. In the preface the author pays a graceful tribute to the memory of his fellow-worker in the following sentence:—"His wide clinical experience, his intimate knowledge of pathology and bacteriology, his personal acquaintance with workers in many lands, and his clear judgment, would have gone a long way towards preventing those defects which I am afraid must be present, though they are unseen by a vision less acute than his."

The second edition has increased considerably in size and in the extent and importance of its subject-matter. The notable additions are chapters on Glanders, Cerebro-spinal Fever, and Plague. In his account of glanders the author quotes the case recorded in the number of this Journal for January, 1905 (Vol. CXIX., page 35), by Dr. E. F. Stephenson. The patient, a man employed in removing an old manure heap from a stable yard in which a glandered horse had been treated two years previously, appeared to have infected himself by picking an aching tooth with his finger-nail.

The account of cerebro-spinal fever is good, if somewhat sketchy; that of plague is excellent.

A special feature of the work is the profuse way in which its pages are illustrated. The coloured frontispiece shows the respective rashes of enteric fever and of typhus. The eruptive fevers are depicted in a series of twenty-three photographic plates. Then there are eleven photographs of micro-organisms—not all of "bacteria," for the meningococci and two varieties of *Streptococcus erysipelatis* are represented.

The distribution of rashes in several fevers is shown in fifteen diagrams. These are, in our opinion, of little value being altogether diagrammatic they are apt to mislead, and, therefore, had better have been omitted.

In a very useful and elaborate table (at page 417), showing the incubation periods, &c., in the case of the most common infectious diseases, the statements are sometimes a little vague; nor is it quite correct to insert the words "no eruption" after influenza, cerebro-spinal fever, diphtheria, and plague. The purpuric rash, which appears in the more malignant cases of cerebro-spinal fever, is as much an eruption as are the petechiæ of typhus; and erythematous rashes are by no means uncommon in the other three acute infections named. In fact, such rashes are very properly described by Dr. Goodall in the case of diphtheria at page 115, in influenza at page 243, and in plague at page 400.

Taken as a whole, the second edition is a distinct improvement on its predecessor, and it gives us pleasure to

commend the work to clinical teachers and medical students alike as a reliable guide to the study of the acute specific fevers.

A Manual of Medical Treatment, or Clinical Therapeutics. New Edition. By I. Burney Yeo, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London, &c.; Raymond Crawfurd, M.A., M.D. Oxon., F.R.C.P., Physician to King's College Hospital, &c; and E. Farquhar Buzzard, M.A., M.D. Oxon., F.R.C.P., Assistant Physician to the Royal Free Hospital, &c. Twenty-second Thousand. London: Cassell & Co. MCMIX. Cr. 8vo. Vol. I. Pp. xv + 802. Vol. II. Pp. viii + 829.

The third edition of Burney Yeo's "Manual of Medical Treatment" was published in 1902, and favourably reviewed in the number of this Journal for February, 1903 (Vol. CXV., page 113). It was reprinted in 1903, 1904, 1906, and 1908; and now the fourth edition issues from the press in January, 1909.

Dr. Burney Yeo has called to his aid in the task of revision two able and experienced coadjutors, and the work now appears with three names on the title-page—those, namely, of Dr. I. Burney Yeo, Dr. Raymond Crawfurd, and Dr. Farquhar Buzzard.

No change has been made in the method of the work as originally adopted. Its object remains, as heretofore, the study of disease from the point of view of treatment; and in its pages the teaching of therapeutics is approached from the side of the disease under discussion, and not from the side of the drug or remedy. In the present edition, as we learn from the preface, Dr. Crawfurd has undertaken the revision of the sections on digestive and circulatory diseases, as well as those dealing with diseases of the liver and kidneys, and Dr. Yeo pays a graceful compliment to his colleague, Dr. Buzzard, in expressing his opinion that his "special knowledge and experience of diseases of the nervous system have been of great value in the revision of the Part treating of those diseases."

Why does Dr. Yeo use the plural sera in his preface? Surely "serum" in its therapeutic sense is a thoroughly modern word, and in English its plural form is undoubtedly "serums." The plural may be "sera" in Italian, but in Latin that word would mean "wheys"! The authors' remarks on the serum-treatment of various diseases are very judicious. In the case of tetanus it is pointed out that 400 cc., regarded as the average quantity needed in an ordinary attack, would cost about £8. Nevertheless, a human life must not be sacrificed even if it takes £8 to save it: and details are given of three cases of recovery from this dread disease in which anti-tetanic serum was used. We agree with the authors that, in accordance with the latest views as to the mode of invasion of the nervous system by the tetanic poison, it is advisable to make the injections along the nerves leading from the site of entry of the virus (where that can be ascertained), or into the spinal theca, rather than subcutaneously, and, as it were, at random.

It will be observed that the work is now published in two volumes of convenient size. Type, paper, and printing are all that can be desired.

Diet in Infancy. The Essential Introduction to the Study of Disease in Childhood. By A. Dingwall Fordyce, M.D., F.R.C.P. Ed.; Extra Physician to the Royal Hospital for Sick Children, Edinburgh. Edinburgh and London: William Green & Sons. 1908. Pp. 174.

This little volume is a very complete guide on the subject of infant feeding. "It pretends to no heights of eloquence and no profound depths of scientific information. It aims at being of practical utility to practical men working among children."

The four parts into which the book is divided deal respectively with Normal Infancy and the Sick Suckling; Substitutes for Mothers' Milk; Artificial Feeding—the Healthy Infant; Artificial Feeding—the Sick Infant.

These titles give a good idea of the scope of the book,

and we can recommend it to anyone anxious to possess a work on the subject. The author believes, and rightly so, that the enormous infantile mortality is very largely due to unnatural and improper feeding, and, therefore, a large proportion of it is preventable He is naturally a strong advocate for mothers nursing their children when possible, and devotes Part I. to this subject.

Part II. deals with substitutes for mothers' milk. The composition of cow's milk and its differences from human milk are described, and on page 37 the author sums up briefly the conditions under which cow's milk should be served as food for an infant. We mention two of these:—(*e*) Should be cooled over ice immediately after milking. (*f*) Should be kept at a temperature below 45° F. until used.

We fear if these are essential the sooner milk is removed from the list of babies' food the better. The various methods of modifying cow's milk to counteract the impurities it contains are carefully compared, and we agree with the author that while "we appreciate the immense value of heat in its capacity as bacterial destroyer, we are forced to admit the necessity of its use, but we deplore the existence of such necessity."

As regards proprietary foods the advice also is excellent. The advantages of such under certain conditions cannot be denied, but "when all is said and done proprietary foods must be considered third-rate food for the infant."

Part III., on the artificial feeding of healthy infants, is chiefly an elaboration of the preceding article, dealing more in detail with the amount of food requisite for the infant during the various periods of its existence.

Part IV., on the artificial feeding of the sick infant, contains many valuable hints on the dietary of the digestive disorders of infancy. The writer does not confine himself merely to dietetics, but adds some remarks on medicinal treatment, and short accounts of some of the diseases affecting the digestive tract are given. The amount of bismuth subnitrate recommended for an infant during the first week of life is 15 grs. thrice daily, and to older infants 15 to 30 grs., frequently repeated for

a short time. We cannot see the use of such heroic doses, nor can we agree with the author that they are associated with no danger.

His treatment of congenital pyloric stenosis when the case is seen early consists in a supply of human milk and repeated washing out of the stomach. We wonder has he never called in the assistance of a surgeon in such cases.

The last seventy pages are devoted to appendices, and comprise a variety of subjects, including the examination of infants' stools, statistics of infantile mortality, composition of proprietary foods, the value of tuberculin test in cattle. As we have already stated, the book gives a very complete account of the subject with which it professes to deal. It is clearly and well written, and has a carefully compiled and accurate index at the end.

Medical Gynæcology. By Samuel Wyllis Bandler, M.D.: Fellow of the American Association of Obstetricians and Gynæcologists; Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School, &c. With Original Illustrations. London and Philadelphia: Saunders Company. 1908. Pp. 676.

This work is devoted to a description of the non-operative side of gynæcology, and represents with elaborations a grouping and rearrangement of the clinical lectures delivered by Professor Bandler. Operative procedures have been placed in the background and viewed as a last resort in all cases in which medical aid can accomplish anything. Professor Bandler has also tried to show the relations which pelvic abnormalities bear to the physical and mental condition of the woman, in order that "we may deal intelligently with gynæcological diseases and not confine our diagnosis and therapeutic measures to the pelvis."

Medical gynæcology is a difficult subject, and does not lend itself, we fear, to the production of a systematic text-book; but we think that on the whole Professor Bandler is to be congratulated on the result of his labours. At the same time, we think the book would be more valuable if it

was a little less diffuse, and if the author did not make his terminology unnecessarily classical. Why he should think it necessary to speak in Latin of *parametritis atrophicans diffusa*, when a moment before he was content to speak in English of subacute parametritis, is as puzzling as why he should use the term *retroflexio uteri gravidi incarcerata* when its English equivalent is just as clear.

The chapters on cystitis, constipation, and gonorrhœa are perhaps the best in the book.

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1. *Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum.* By Andrew Balfour, M.D., B.Sc., F.R.C.P. Edin., D.P.H. Camb.; Director, Medical Officer of Health, Khartoum. Published for the Department of Education, Sudan Government, Khartoum, by Baillière, Tindall & Cox, 8 Henrietta Street, Covent Garden, London. 1908. Large Quarto. Pp. 477.

2. *Review of Some of the Recent Advances in Tropical Medicine, Hygiene, and Tropical Veterinary Science, with Special reference to their possible bearing on Medical, Sanitary and Veterinary Work in the Anglo-Egyptian Sudan.* By Andrew Balfour, M.D., B.Sc., F.R.C.P. Edin., D.P.H. Camb., Director; and R. G. Archibald, M.B., R.A.M.C., attached E. A., Pathologist and Assistant Bacteriologist, Fellow of the Society of Tropical Medicine and Hygiene. Published for the Department of Education, Sudan Government, Khartoum, by Baillière, Tindall & Cox, London. 1908. Large Quarto. Pp. 251.

These splendid volumes are fitting companions to the First and Second Reports of the Wellcome Research Laboratories, which have been already noticed in these columns. The first of the series was published in 1904, the second in 1906.

1. The latest work of the Laboratories is shown in the Third Report issued towards the close of 1908, and which includes papers showing the continuance of the work detailed in the First and Second Reports, and, in addition, introduces several new features.

In the first place, there will be found papers by medical officials who, though not actually members of the staff, have carried on researches in the Laboratories. Secondly, the sciences of Ethnology, Ethnography and Anthropology have received considerable attention, and the papers on these subjects form a complete addendum to the subject of Tropical Medicine.

The third change is the introduction of a chapter under the heading "Sanitary Notes." Dr. Andrew Balfour, the author, as a Medical Officer of Health, has been much impressed by the useful lessons to be learned from a study of the problems in connection with the carrying out of a sanitary policy for a new town in the Tropics.

Among the contents of the volume will be found articles on Trypanosomiasis, Piroplasmosis, and Kala-azar, as observed in the Anglo-Egyptian Sudan, on Sleeping-sickness; "on the Poisonous Snakes of the Anglo-Egyptian Sudan," by Dr. Franz Werner; and a report on "Economic Entomology," by Mr. Harold H. King. These are only a few out of the many interesting papers which make up the volume. The work is lavishly illustrated with 28 coloured plates, 51 reproductions of black and white drawings, 263 reproductions of photographs, and 19 maps and plans. Dr. David Waterston's report on the physical characters of some of the Nilotic negroid tribes will possess rare attraction for all ethnologists. It is based in part on observations made by the late Dr. Alexander MacTier Pirrie, Carnegie Research Fellow in Anthropology, Edinburgh University, who went out in the autumn of 1906 from Scotland to Egypt in order to undertake anthropological work among the tribes of the Sudan under Dr. Balfour. For this purpose he made an expedition into the Burun country, which lies east of Melut on the White Nile, lat. 10°-11° N., long. 33° 34° E. Dr. Pirrie died on November 12, 1907, at the Chalmers Hospital, Edinburgh, on the threshold of what promised to be a scientific career of great distinction.

2. The "Review of Some of the More Recent Advances in Tropical Medicine, Hygiene, and Tropical Veterinary Medicine," by Dr. A. Balfour and Dr. R. G. Archibald, forms

a supplement of 251 pages, including 13 pages of index to the Third Report of the Khartoum Research Laboratories. It is primarily intended as a guide for medical and veterinary officers stationed in the Sudan, but its pages are full of information for all practitioners of medicine at home and abroad.

This review is intended to serve as a guide to new books and papers in that rapidly-growing science, Tropical Medicine; and to present in a small compass the more important recent discoveries on the subjects indicated. Full references are given to sound practical papers, which are likely to be helpful to those who wish to go more fully into any special subject, but the scientific aspect of certain questions has not been neglected.

This book will stimulate research and lead to the acquisition of useful information in directions where knowledge as regards Tropical and Veterinary Medicine, Bacteriology and Hygiene is still deficient.

Our friends, the veterinary surgeons, will feel a natural satisfaction at the handsome way in which the authors recognise the fast improving status of the veterinary profession.

The contents of the supplement are arranged under headings in alphabetical order, commencing with "Ainhum," "Air," "Akatama," "Amœba," "Animals," and so on. This facilitates reference. The several articles consist of a digest of recent literature (down to the middle of July, 1908), concerned with their subject-matter.

In conclusion, it seems to us that this series of publications goes far to remove from British Medicine the reproach that it is non-progressive and lacking in research. In support of our opinion, it may be well to specify the functions of the Wellcome Research Laboratories, Gordon Memorial College, Khartoum. They are as follows:—

a. To promote technical education.

b. To promote the study, bacteriologically and physiologically, of tropical disorders, especially the infective diseases of both man and beast peculiar to the Sudan, and to render assistance to the officers of health and to the clinics of the civil and military hospitals.

c. To aid experimental investigations in poisoning cases

by the detection and experimental determination of toxic agents, particularly the obscure potent substances employed by the natives.

d. To carry out such chemical and bacteriological tests in connection with water, food stuffs, and health and sanitary matters as may be found desirable.

e. To promote the study of disorders and pests which attack food and textile producing and other economic plant life in the Sudan.

f. To undertake the testing and assaying of agricultural, mineral and other substances of practical interest in the industrial development of the Sudan.

The Dublin University Calendar for the Year 1908–1909. Vol. II. Dublin: Hodges, Figgis & Co. 1909. 8vo. Pp. iv + 353.

This volume of the "University Calendar" for the current year contains the usual lists of honours and prizes, of degrees conferred during the academic year, and of awards in the various professional schools.

The total numerical strength of Trinity College under the degree of M.A. in 1909 is given at page 122. The figures are these:—Women—Non-foundation Scholars, 9; Pensioners, 99; Sizars, 2. Men—Scholars of the House, 70; Pensioners, 892; Sizars and ex-Sizars, 37: Total, 1,109. This number does not include the names of students in the Medical School or Law School who have not paid the last half-yearly Arts' fee. Compared with 1908, there is a falling off of 132, but this is accounted for by the fact that in that year there were 238 women pensioners under the degree of M.A. on the College Books. In 1909, as stated above, the women pensioners under M.A. standing number only 99. The Senatus Academicus numbers 431, compared with 459 in 1908. On the roll of Parliamentary Electors of the University of Dublin, 4,990 names appear, compared with 4,863 in 1908. This list still needs more careful revision in the matter of addresses as well as in respect to the names.

The printing of the volume is excellent, and, considering the number of names, is wonderfully accurate.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny, M.D., F.R.C.P.I.
General Secretary—James Craig, M.D., F.R.C.P.I.

SECTION OF SURGERY.

President—John Lentaigne, P.R.C.S.I.
Sectional Secretary—A. J. Blayney, F.R.C.S.I.

Friday, January 8, 1909.

The President in the Chair.

The Treatment of Extroversion of the Bladder by Transplantation of the Ureters into the Rectum.

Mr. C. Arthur Ball read a paper on the above subject. Having discussed the principal theories as to the cause of the condition, Mr. Ball gave an account of the various operative procedures that have been recommended, and expressed the opinion that the safest and most satisfactory procedure was the transplantation of the ureters into the rectum by an extraperitoneal operation. Details were then given, by means of lantern slides, of a case in which the operation had been carried out in a boy, aged five years. The child was operated on last July, and the result was satisfactory, the child being in perfect health six months later, and having very fair powers of retaining urine in the rectum. Three months after the operation urine could be retained up to three and a half hours, and this control had continued to improve since then.

The President said the case was, so far as he knew, the first satisfactory one that had been done in Dublin, and illustrated the improvement which had been effected in dealing with an apparently hopeless condition. By the newer process, unusually short and safe treatment had effected far more improvement than any of the complicated efforts made before. He desired to know whether it had been proposed to infold the rectum at the point

where the ureter entered it, so as to make it less likely to slip out, and give a broader field for adhesion on the part of the ureter. He congratulated Mr. Ball on the result.

Mr. Seton Pringle wished to know if there was any trouble in keeping the peritoneum back, and seeing what was being done.

Mr. Ball, in reply, said he did not think infolding of the rectum had been done. In his case there seemed to be no tendency to slip out. He did not see the peritoneum until he first came on the rectum. One would have expected it to get in the way sooner than it did. There was considerable separation of the pubic bones, and the pelvic cavity was consequently very shallow, so that the case was ideally arranged for the surgical procedure carried out.

Abscess of the Pancreas, with Report of a Case following Acute Gangrenous Pancreatitis.

Mr. Seton Pringle read a paper on the above subject. After expressing the opinion that all cases of pancreatitis should be reported, so that a fuller knowledge of the disease should be gained, he gave a detailed account of the case on which the paper is based. The patient, aged forty-six, with a marked alcoholic history, was admitted to hospital on the twelfth day of his illness with signs of peritonitis of the upper abdomen, where a large tumour mass could be felt. Operation was performed immediately, and a large abscess found in the lesser peritoneal sac, the edges of the opening into the abscess were sutured to the parietal peritoneum, and a large drainage tube was inserted. There were numerous patches of fat-necrosis in the omentum and a small quantity of bloody fluid in the larger sac of peritoneum. The patient progressed favourably for a few days, but gradually lost strength, and died on the twelfth day after operation. The urine, several days after operation, gave a marked Cammidge "C. reaction." At the *post-mortem* it was found that the head and body of the pancreas had sloughed, only the tail surviving: no gall-stones were discovered. Mr. Pringle then discussed the ætiology of the case, and expressed the opinion that the pancreatitis in his patient was the result of alcoholic gastro-duodenal catarrh. After enumerating the various forms in which suppuration may occur in the pancreas, he gave a short account of the methods of treatment at present employed, and concluded by calling attention to the fact that only some sixteen cases of operation for pancreatic abscess were recorded in the literature.

The President said that cases of comparatively newly-recognised diseases, the symptoms of which were most obscure, were just such as should be brought forward in detail in the excellent way in which Mr. Pringle had reported this case, and they were the more grateful to him for having brought forward a case in which his efforts to cure had not been rewarded with success. The case showed the importance of early operation. If the abdomen had been opened at an early stage it was possible that the gangrene might have been averted; at any rate it would have been more hopeful. It was only by the bringing forward of such cases that they would be able to arrive at an early diagnosis.

Mr. Stokes said he had seen a similar case operated on a couple of years ago, in which acute septic peritonitis was found at the *post-mortem*. But for that the case might have pulled through. The question of draining behind had been raised, but the Americans had given that up unless the inflammation was confined to the tail of the pancreas.

Mr. Blayney said there could be no doubt that at the time the patient was seen no surgical measures could have saved him. He thought it was of very great importance that these cases should be diagnosticated in their very earliest stage. If the patient had been seen when he got the first pain, an operation then might possibly have been successful. Only by examination of a series of cases would they find some group of symptoms which would indicate the onset of the disease, and for that reason he thought the publication of such cases was most useful.

Mr. Ball suggested that the apparently greater frequency of the disease in hospital patients than in private patients might arise from differences of habits in eating and drinking.

Mr. Pringle, in reply, said that in his case there was no peritonitis in the lower abdomen. Cammidge had improved his reaction, and had obtained it in every case in which there was pancreatitis, either acute or chronic, and it was present in only four out of one hundred and fifty cases in which there was no pancreatitis. It was, therefore, apparently a fairly satisfactory clinical test.

The Choice of Operation in Cancer of the Rectum.

Mr. Wheeler being absent, his paper was read by the Secretary.

SECTION OF MEDICINE.

President—W. G. Smith, M.D., F.R.C.P.I.

Sectional Secretary—F. C. Purser, M.D., F.R.C.P.I.

Friday, January 15, 1909.

The President in the Chair.

Notes on a Year's Mental Hospital Work.

Dr. Dawson read a short report of the more interesting points which had arisen in the practice of Farnham House Mental Hospital during the year ending March 31, 1908. [His paper will be found at page 161.]

The President said that, to the ordinary practitioner, the subject of ætiology, on which Dr. Dawson had dwelt at the commencement of his paper, was, perhaps, the most important chapter in neurological work. If their minds were clear as to the circumstances that predisposed to insanity, the practitioner might sometimes be in a better position to forewarn patients, and be forearmed himself as to what to do. The discussion in that section last year had showed that the influence of alcoholism *per se* in the production of insanity had been overrated. He was anxious to know if there were any definite mental variations correlated in any way with the forms of alcoholism. It was said that the police of France found absinthe drunkards to be homicidal, and had to separate them from the others, and it was possible that the essential oils in absinthe were important in producing pathological results. He would also like to know if there was any particular type of mind, or mental development, that was specially predisposed to alcoholic disturbance.

Dr. Kirkpatrick thought that in two of the three groups of causation—diathesis and mental stress and strain—it was difficult to appreciate Dr. Dawson's exact meaning. He had some difficulty in understanding what he meant by regarding diathesis apart from heredity in some of his figures. Did he recognise a type of individual who was likely to go mad apart from any hereditary taint? He thought there was a difficulty in accepting mental stress and strain as a general cause of insanity, although it might be a predisposing cause in conjunction with some weakness—hereditary or acquired. It had been proved that eye-strain, either from want of muscle balance or errors of refraction, was capable of producing very serious nervous

troubles, and many long-standing nervous diseases had been cured by correction of such errors, which might be a cause of trouble in the brain, and, under subsequent strain, might produce insanity.

Dr. Dawson, in reply, said that the correlation of alcoholism and mental affection did not appear, as far as he was aware, to have been studied. He was strongly of opinion that anyone who had a neurotic heredity, or who had acquired it, should abstain absolutely from alcohol, as all such were liable to go to excess. Melancholic and demented patients were liable to suffer more from glycosuria than others. There were very few cases of insanity in which there were not contributory and exciting causes, and his classification was intended to embrace only what he considered the predominating cause of the particular attack. Diathesis was probably always hereditary, but it was not possible in all cases to trace the heredity. A widespread peculiarity, too trivial to excite any great remark, would produce a greater effect in the offspring than the occurrence in a family of a few sporadic attacks of insanity. He therefore held diathesis to be a different thing from heredity. He had not had experience of cases due to eye-strain.

Intracranial Tumour.

Dr. Drury read the history of a case of the above condition in a female aged thirty. Her symptoms had lasted for six months before she came under observation. When seen, the cardinal symptoms of brain tumour were present, but there was nothing to indicate its position. As she was getting rapidly worse, unconsciousness impending and sight almost gone, it was decided to ask Dr. Arthur Ball to do an operation for the relief of pressure. This was done on July 13. A large trephine opening was made in the temporal region on the right side under the muscle; the dura was opened and a small quantity of fluid escaped; the wound was then closed. Improvement followed rapidly; at intervals vomiting and headache returned, and the brain was tapped, fluid being drawn off on each occasion. These intervals became shorter, till eventually tapping had to be done daily. A tube was then inserted and kept in permanently for several weeks. During all this time very large quantities of fluid escaped. She improved so much that she could walk about, and could see and recognise people, and had neither headache nor vomiting. The wound was kept aseptic during the whole time. She suddenly became unconscious one morning and died the next morning

Nov. 8th. nearly five months after operation. The case was brought forward to illustrate the merciful relief afforded by an operation of this kind, where there were no symptoms to indicate the position of the lesion, and, therefore, where no operation with any hope of cure could be attempted. It was found that the lesion was a large cyst in the cerebellar and pontine regions, which could not have been dealt with even had it been localised.

Note on Poliomyelitis of the Conus Medullaris.

Dr. O'Carroll read an account of a case of the above affection. A girl, aged seventeen, had been sent up from the country suffering from "tumour of the bowel." This turned out to be a very big prolapse of the rectum. Some months previously she had had a febrile attack, following which she had suffered from incontinence of urine and fæces. Later the bowel prolapsed. The sphincter ani was entirely relaxed, and the opening of the urethra rather wide. Sensation was perfect. The patient's general health was good. Under treatment, principally by the faradic current, complete control was recovered in the rectum, but the patient was unable to retain urine for more than two hours when she left hospital.

Friday, February 26, 1909.

The President in the Chair.

The Prognosis in Valvular Disease of the Heart.

Sir J. F. H. Broadbent (Bart.) opened a discussion on the above subject. [His paper will be found at page 244].

The President said the essential points in the prognosis of valvular disease of the heart had been laid down sixty years ago by Dr. Stokes. He did not think the classification of the relative danger of valvular lesions a very profitable subject for discussion, and very diverse classifications had been proposed. With the exception of the two statements that aortic incompetence was the most serious and mitral patency the least serious, it was idle to base classifications on a single factor. It was quite plain that, in actual practice, in forming their opinions it was impossible to avoid associating prognosis and treatment, and they judged of their prognosis largely by the observation whether the patient responded to treatment or not. He was incredulous as to the

possibility of determining slight variations in the volume of the heart by percussion. All the rules of prognosis would never account for some of the cases of sudden death. Prognosis depended on a unknown factor—the vital condition of the heart-muscle—and the less they could find out about the patient the more dangerous was the outlook.

Sir Christopher Nixon (Bart.) said they must bear in mind that prognosis was so inextricably mixed up with all the phenomena of the circulation that it was only by studying those phenomena as a whole that they could make any attempt to form an opinion as to the future of any individual case. They might make a diagnosis without a prognosis, but they could not make a prognosis without a diagnosis. That was why every available symptom and sign must be utilised; hence he should not like to identify himself with paying too slight respect to the ancient method of percussion. It was probably the least reliable of all methods of investigation, but in very many cases both the superficial and the deep areas of dulness on percussion gave valuable evidence as to the size of the organ. They had been in the habit of attaching too much importance to the existence of a murmur in prognosis, and probably they were inclined to multiply those murmurs to too great an extent. Their distinctions with regard to some of them were, no doubt, artificial, cumbrous, and without practical use. The main fact they had to determine was the reserve force of the heart, and they must bear in mind how much that reserve force varied in individuals. It differed much within the limits of health, and how much more must it differ in cases of cardiac disease. To his mind the principles laid down in Mackenzie's work on diseases of the heart afforded the best direction for future investigations, especially in prognosis. Mackenzie pointed out certain traces of primitive cardiac tissue from which stimulus was derived, and in connection with which grave abnormalities of function were found, and while some of his speculations might be regarded as eminently theoretical, his investigations were on the right lines, and he (the speaker) did not think enough importance was attached to the anatomy of the heart in their courses of study. He adopted Sir John Broadbent's order of cardiac lesions. In aortic patency the amount of leakage into the left ventricle was particularly important. Where the leakage was small and—as far as the left auricle was concerned—the left ventricle was a water-tight compartment, there were all facilities for compensa-

tion, and such patients did uncommonly well. But in cases arising from rheumatic endocarditis, where the valves were curled up against the aortic walls, or from a rupture of one of the valves, there was such a sudden disturbance of the circulation that the ventricle underwent an irritative form of hypertrophy, which was most serious in its character. They could approximately determine the amount of leakage by the length of the murmur and the degree of facility with which Duroziez' murmur in the femoral arteries could be produced. The form of aortic patency from atheromatous change in the aorta was most likely to produce sudden death. Next to aortic patency he considered mitral obstruction the most grave form of heart disease, from the fact that it occurred early in life, was progressive, and was imperfectly compensated, while the inflammation had a tendency to produce cicatricial changes in the valve. There was also in this lesion the danger of haemorrhagic infarction in the lungs, a point in which he ventured to differ from Sir John Broadbent. There was the tendency to cerebral and other forms of embolism. He thought the disappearance of the second sound at the apex was an accidental condition, and it was not unreasonable to imagine that where they had two murmurs well produced, the second sound was last. In mitral stenosis, when the right auriculo-ventricular valve became relatively incompetent, and with that condition the increased pressure was taken off the pulmonary artery, the sound of Skoda disappeared. When tricuspid regurgitation was established they had then the downward progress of the patient. The remarkable alteration in the first sound was not found alone in the terminal stages—it was found in mitral stenosis early in the disease, and it was suggested that it was due to the striking together of the flaps of a funnel-shaped mitral valve. This was, of course, incorrect. It was heard at an early stage of mitral stenosis, and he thought it was explained by blood flowing in small quantity from the auricle into the ventricle, not causing any very great initial tension in the valve flaps, then, when the ventricle contracted, the final tension of the flaps was so materially increased that the first sound had a markedly intensified sound. In mitral stenosis complete obliteration of the pulse could be procured by raising the hand above the head, and he did not think they had such a remarkable sign in any other valvular disease. Referring to mitral regurgitation, which he placed next in the order of gravity, he discussed

the various conditions under which mitral reflux took place, some of trivial importance, as when it occurred in anæmia, chlorosis, or after prolonged fevers. In other cases where the valves were practically destroyed the prognosis would be grave. He thought aortic obstruction a very common form of disease. He had found it along with some evidence of simple hypertrophy of the left ventricle, but with no subjective phenomena. Such cases did very well as long as the condition was confined to the left ventricle, and there was perfect compensation. But where they found a loud murmur over the aortic orifice transmissible to the neck, with breathlessness on exertion, they had a condition almost as fatal in character as the worst form of aortic patency. To sum up, he would be inclined to put the cases under three classes :—(1) The obvious case—the case of failing compensation in aortic patency ; the case of aortic atheroma with the Stokes-Adams syndrome ; the case of mitral obstruction, with the nodal rhythm and the changes set up as a result of tricuspid regurgitation. In all such cases they would give a bad prognosis. (2) Cases of recurrent valvular disease—cases in which the dropsy and other urgent symptoms subsided, and the patient was able to resume his work as usual ; their estimate of the patient's length of life would be merely a guess. (3) In cases rheumatic in origin, and under conditions of life that were not favourable to the existence of cardiac disease, they might fairly give the answer "I do not know" to the question "How long am I likely to live?"

Dr. J. M. Finny said the great point to bear in mind in dealing with the question of prognosis was the condition of the heart-muscle. The character of the sounds was of less importance than seeing whether the heart was doing its work and had some reserve beyond it. He did not think an opinion was justified without considering the matter of treatment. He always bore in mind a dictum of Dr. Stokes that many patients died *with* valvular disease, but died *of* something quite different. Prognosis should be based on the general life of the patient. Many valvular cases went about their work until influenza came, and at once the reserve power was lost, and the patient died *of* influenza, but *with* heart disease. In his opinion it was not the physical condition of the valves, but that of the muscle, of the heart on which stress should be laid.

Sir John Broadbent, in reply, said they could not get much information as to the left ventricle by percussion ; its chief value

was in acute myocardial changes. He thought Mackenzie had thrown a great deal of light on disorders of rhythm, but he was not prepared to admit all about the myogenic theory, which had become a sort of fetish, and was quoted to explain all the final stages in cardiac breakdown. A case had been published of a child with sarcoma of the heart. The whole of the right auricle and ventricle was a mass of new growth. There was no conceivable possibility of contraction. The whole circulation was maintained by the left ventricle, and all through there was no irregularity of rhythm. That absolutely demolished the myogenic theory.

BILE AS A CULTURE-MEDIUM FOR THE TUBERCLE BACILLUS.

Calmette and Guerin have recently communicated a paper to the Académie des Sciences of Paris describing a new medium for the cultivation of the bacillus of tubercle. This medium consists of specially prepared bile, made up into a solution containing 5 per cent. bile in glycerine. The technique of the preparation of the medium is too lengthy for description in these columns, and the author's experiments for the same reason cannot be described here. Their communication, however, is of sufficient interest for their conclusions to be given at some length. These are as follows:—The bovine bacillus of tubercle, cultivated on the bile of cows, acquires special characteristics which are wanting in bacilli cultivated on the ordinary media. Bacilli from these bile-media are easily absorbed through the intestinal wall, and when absorbed in sufficient quantity by this route create lesions which quickly calcify. When infected intravenously into animals of the bovine species, these cultures produce a general febrile disturbance without the formation of tubercles. Human bacilli can be cultivated only with difficulty on the bile of cows, and bacilli derived from birds will not develop at all on such a medium. If, however, human and birds' bile be substituted for cow's bile, the respective bacilli will grow easily, and will take on the same characteristics as bovine bacilli grown on cow's bile. It would, therefore, seem that this new method of cultivation can be employed advantageously for the differentiation of tubercle bacilli into species.—*The Hospital*, February 6, 1909.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore.

Vital Statistics.

For four weeks ending Saturday, February 27, 1909.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended February 27, 1909, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.0 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,142,308. The deaths registered in each of the four weeks ended Saturday, February 27, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Feb. 6	Feb. 13	Feb. 20	Feb. 27			Feb. 6	Feb. 13	Feb. 20	Feb. 27	
22 Town Districts	20.7	20.4	21.5	23.0	21.4	Lisburn -	31.8	4.5	31.8	27.3	23.8
Armagh -	—	13.7	27.5	27.5	17.2	Londonderry	15.7	18.1	8.5	22.0	16.3
Ballymena	23.9	14.4	23.9	14.4	19.2	Lurgan -	31.0	26.6	8.9	31.0	24.4
Belfast -	17.5	15.6	17.1	21.0	17.8	Newry -	25.2	29.4	37.8	29.4	30.4
Clonmel -	—	30.8	—	30.8	15.4	Newtownards	40.1	22.9	17.2	11.4	22.9
Cork -	26.0	24.0	21.2	23.3	23.6	Portadown -	15.5	5.2	5.2	10.3	9.1
Drogheda -	16.3	36.8	8.2	28.6	22.5	Queenstown	13.2	33.0	33.0	26.4	26.4
Dublin (Reg. Area) -	24.3	25.1	25.8	24.3	24.9	Sligo -	38.4	19.2	28.8	28.8	28.8
Dundalk -	12.0	8.0	16.0	19.9	14.0	Tralee -	21.1	31.7	37.0	26.4	29.0
Galway -	7.8	—	38.8	23.3	17.5	Waterford -	9.7	5.8	40.9	25.3	20.4
Kilkenny -	34.3	29.5	34.3	19.7	29.4	Wexford -	32.7	32.7	14.0	14.0	23.3
Limerick -	13.7	23.2	16.4	24.6	19.5						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, February 27, 1909, were equal to an annual rate of 1.0 per 1,000, the rates varying from 0.0 in sixteen of the districts to 4.9 in Kilkenny—the 4 deaths from all causes registered in that district including one from measles. Of the 156 deaths from all causes for Belfast there was one death from cerebro-spinal fever, but no mortality from any of the principal epidemic diseases is recorded. Among the 34 deaths from all causes registered in Cork are one from measles and one from whooping-cough. Of the 19 deaths from all causes in Londonderry one is from whooping-cough. One death from typhus is included in the 13 deaths from all causes in Waterford, and of the 3 deaths from all causes in Wexford one was from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, February 27, 1909, amounted to 227—119 boys and 108 girls ; and the deaths to 197—88 males and 109 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 25.8 in every 1,000 of the population. Omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the Area, the rate was 24.3 per 1,000. During the eight weeks ending with Saturday, February 27, 1909, the death-rate averaged 26.1, and was 2.2 below the mean rate for the corresponding portions of the ten years 1899–1908.

The total deaths from all causes, which amounted to 197, included one from measles, 7 from whooping-cough, one from *pyrexia* (origin uncertain), 3 from enteric fever, 5 from diarrhœal diseases, and 4 from influenza. In the 3 preceding weeks deaths from measles had been 7, one, and 4 ; deaths from whooping-cough, one, 5, and 2 ; deaths from *pyrexia* 0, 0, and 0 ; deaths

from enteric fever 0, 4, and one ; deaths from diarrhœal diseases 0, 2, and 0 ; and deaths from influenza, 0, 2, and 0, respectively.

There were 5 deaths from broncho-pneumonia, and 7 deaths from *pneumonia* (not defined).

Deaths from all forms of tuberculous diseases which had numbered 32, 31, and 43 in each of the three preceding weeks, were 27 in the period under notice, the latter total including 19 deaths from tubercular phthisis (*phthisis*), 3 deaths from tubercular meningitis, 2 deaths from *tabes mesenterica*, and 3 deaths from other forms of the disease.

Carcinoma caused the deaths of 3 persons, and 5 deaths were attributed to cancer, malignant disease (undefined).

The deaths of 4 infants, prematurely born, were registered.

Of 17 deaths from diseases of the brain and nervous system 5 were from *convulsions*. Of these 4 were of infants under one year of age, and one was of a child aged one year and 4 months.

Thirty-one of the deaths registered were caused by diseases of the heart and blood vessels, and the deaths attributed to bronchitis numbered 32.

The deaths from accidental violence numbered 3—namely, one death by an accident with a cart, one death by a fall in building operations, and one death by accidental burning.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 3 children under 5 years of age (including 2 infants under one year old) and the death of one person aged 70 years.

Fifty-nine of the persons whose deaths were registered during the week were under 5 years of age (36 being infants under one year, of whom 11 were under one month old), and 62 were aged 60 years and upwards, including 27 persons aged 70 and upwards, of whom 3 were octogenarians, and one (a female) was stated to have been aged 97 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889,"

as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended February 27, 1909, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Feb. 6	-	*	*	6	3	-	5	-	-	10	10	-	*	*	-	34
	Feb. 13	-	*	*	5	1	-	4	-	3	4	11	-	*	*	-	28
	Feb. 20	-	*	*	2	-	-	2	-	1	2	8	-	*	*	-	15
	Feb. 27	-	*	*	5	-	-	6	-	4	5	13	-	*	*	-	33
Rathmines and Rathgar Urban District	Feb. 6	-	*	*	1	-	-	-	-	-	2	2	-	*	*	*	5
	Feb. 13	-	*	*	-	-	-	3	-	-	1	1	-	*	*	*	5
	Feb. 20	-	*	*	-	-	-	3	-	1	4	-	-	*	*	*	8
	Feb. 27	-	*	*	-	-	-	1	-	-	-	-	-	*	*	*	1
Pembroke Urban District	Feb. 6	-	-	-	1	-	-	4		1	1	4	-	*	1	-	12
	Feb. 13	-	2	-	1	-	-	-	-	1	-	-	-	*	4	-	8
	Feb. 20	-	6	-	-	-	-	-	-	-	-	-	-	*	2	-	15
	Feb. 27	-	4	-	1	-	-	-	-	-	-	-	-	*	17	-	22
Blackrock Urban District	Feb. 6	-	*	*	-	-	-	-	-	-	-	-	-	*	-	-	-
	Feb. 13	-	*	*	2	-		2	-	-	-	-	-	*	*	-	4
	Feb. 20	-	*	*		-		-		-	-	-	-	*	*		-
	Feb. 27	-	*	*		-		-	-	-		-		*	*	-	
Kingstown Urban District	Feb. 6	-	*	*	-			-	-	-	-	1	-	*	*	*	1
	Feb. 13	-	*	*	-	-		-	-	-	-		-	*	*	*	-
	Feb. 20	-	*	*	-		-	-	-	-	-	-	-	*	*	*	
	Feb. 27	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	
City of Belfast	Feb. 6	-	*	*	8	-		2	-	2	2	9	1	*	*	-	24
	Feb. 13	-	*	*	5	-	-	1	-	-	2	6	1	*	*	-	18
	Feb. 20	-	*	*	7	-	-	2	-	1	3	1	1	*	*	-	22
	Feb. 27	-	*	*	6	1		2	-	1	1	2	1	*	*	-	17

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended February 27, 1909, 28 cases of measles

were admitted into hospital, 14 were discharged, and 60 cases remained under treatment at its close.

Four cases of scarlet fever were admitted to hospital, 3 were discharged, and 36 cases remained under treatment at the close of the week. This number is exclusive of 10 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Four cases of typhus remained under treatment at the close of the week.

Eight cases of diptheria were admitted to hospital, 7 were discharged, and 42 patients remained under treatment at the close of the week.

Six cases of enteric fever were admitted to hospital, 8 were discharged, there was one death, and 64 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 13 cases of pneumonia were admitted to hospital, 8 were discharged, there was one death, and 34 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, February 27, in 76 large English towns, including London (in which the rate was 19.9), was equal to an average annual death-rate of 19.1 per 1,000 persons living, the average rate for 8 principal towns of Scotland was 20.0 per 1,000, the rate for Glasgow being 21.1, and for Edinburgh 21.4.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended February 27, 1909. From this Report it appears that of a total of 72 cases notified, 33 were of scarlet fever, 20 of diphtheria, 16 of phthisis, 2 of erysipelas, and one of enteric fever. Among the 373 cases of infectious diseases in hospital at the close of the week were 173 cases of scarlet fever, 58 of diphtheria, 47 of phthisis, 41 of whooping-cough, 9 of erysipelas, 6 of enteric fever, 5 of chicken-pox, 3 of measles, and 2 of cerebro-spinal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of February, 1909.

Mean Height of Barometer,	30.130 inches.
Maximal Height of Barometer (13th, at 9 p.m.),	30.656 ,,
Minimal Height of Barometer (9th, at 9 p.m.),	29.463 ,,
Mean Dry-bulb Temperature,	42.0°.
Mean Wet-bulb Temperature,	39.7°.
Mean Dew-point Temperature,	36.9°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.221 inch.
Mean Humidity,	82.9 per cent.
Highest Temperature in Shade (on 4th),	55.2°.
Lowest Temperature in Shade (on 14th),	28.0°.
Lowest Temperature on Grass (Radiation) (14th),	25.7°.
Mean amount of Cloud,	67.2 per cent.
Rainfall (on 8 days),	.593 inch.
Greatest Daily Rainfall (on 28th),	.249 ,,
General Directions of Wind,	W., S.S.E.

Remarks.

A cloudy, but dry, month, with a mean temperature slightly above the average in Dublin, and a small rainfall. An anticyclone lying to the eastward caused a high mean atmospheric pressure and a preponderance of fresh to strong S.S.E. winds. In England the weather was much colder than in Ireland, or even in Scotland: but it became cold in all parts of the British Isles during the closing days of the month. The first week was particularly mild—on Thursday, the 4th, the thermometer in Dublin ranged between 51.1° and 55.2°; and on that day it rose to 58° at Cambridge and to 59° at Killarney. On the other hand, on the morning of Tuesday, the 23rd, the minima in the screen were 23° in London, 21° at Nottingham, 19° at Oxford, and 18° at Bath.

In Dublin the mean temperature (42.7°) was 0.3° above the average (42.4°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 42.0°. In the forty-five years ending with 1909, February was coldest in 1895 (M. T. = 34.2°), and warmest in 1903 (M. T. = 47.5°). In 1908 the mean temperature was 44.8°.

The mean height of the barometer was 30.130 inches, or 0.275 inch above the average value for February—namely, 29.855 inches. The mercury rose to 30.656 inches at 9 p.m. of the 13th, having fallen to 29.463 inches at 9 p.m. of the 9th. The observed range of atmospheric pressure was, therefore, 1.193 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 42.0°, or only 0.2° above the value for January, 1909. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .50), the M. T. is 42.7°, compared with a thirty-five years' (1871–1905) average of 42.4°. On the 4th the thermometer in the screen rose to 55.2°—wind, W.S.W.; on the 14th it fell to 28.0°—wind, W.S.W. The minimum on the grass was 25.7° on the 14th.

The rainfall was .593 inch, distributed over 8 days. The average rainfall for February in the thirty-five years, 1871–1905, inclusive, was 2.010 inches, and the average number of rainy days was 15. The rainfall, therefore, was considerably below the average, and so were the rainy days. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879 also 3.706 inches fell on 23 days. On the other hand, in 1891, only .042 inch was measured on but 2 days. In 1908, 1.372 inches fell on 20 days.

There was more or less fog on the 22nd, 23rd, and 25th. The amount of cloud—67.2 per cent.—was above the average—66 per cent. High winds were noted on 9 days, but reached the force of a gale on the 3rd only. Hail fell on the 10th, 26th and 28th. Snow or sleet fell on the 12th, 26th and 28th. Lunar halos were seen on the 2nd and 5th, and a lunar corona on the 6th.

The temperature reached or exceeded 50° in the screen on 8 days, while it fell to 32° on 3 nights, compared with freezing temperatures on as many as 18 nights in 1895. The minima on the grass were 32° or less on 8 nights, compared with every night in 1895. The thermometer never failed to rise to 40° in the screen in the daytime. The highest minimum was 51.1° on the 4th.

In Dublin the rainfall up to to February 28th amounted to 1.857 inches on 22 days, compared with 3.427 inches on 36 days in 1908, 1.732 inches on 23 days in 1907, 5.771 inches on 42 days in 1906, 2.647 inches on 26 days in 1905, 5.847 inches on 36 days in 1904, 5.503 inches on 35 days in 1903, 3.362 inches on 22 days in 1902, 3.872 inches on 29 days in 1901, and a thirty-five years' (1871–1905) average of 4.220 inches on 33 days.

At the Normal Climatological Station in Trinity College, Dublin, Mr. William J. Good reports that the mean height of the barometer was 30.135 inches. The range of atmospheric pressure was between 29.465 inches at 9 p.m. of the 9th and 30.644 inches

at 9 p.m. of the 13th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 40.9°. The arithmetical mean of the daily maximal and minimal temperatures was 42.4°. The screened thermometers rose to 56.0° on the 4th, and fell to 27.5° on the 14th. On the 13th the grass minimum was 20.0°. Rain fell on 6 days to the amount of .566 inch, the greatest fall in 24 hours being .250 inch on the 28th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 52.5 hours, of which 5.6 hours occurred on the 10th and 5.2 hours on the 20th. The mean daily duration of bright sunshine was 1.9 hours. The mean earth-temperatures were—at 1 ft., 41.5°; at 4 ft., 43.9°. The one-foot thermometer ranged between 45.6° on the 5th and 39.0° on the 14th. The four-feet thermometer ranged from 44.5° on the 7th and 8th to 43.4° on the 2nd.

The rainfall at Leeson Park, Dublin, is given by Dr. C. Joynt, F.R.C.P.I., as .560 inch on 8 days, .290 inch having been measured on the 28th.

At the Ordnance Survey Office, Phœnix Park, the rainfall was .678 inch on 11 days, the maximal measurement in 24 hours being .232 inch on the 28th. The total amount of sunshine was 80.1 hours, the greatest daily duration being 7.7 hours on the 19th.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 8 days to the amount of .64 inch, the greatest daily fall being .21 inch on the 28th. In February, 1901, the rainfall was 1.55 inches on 10 days; in 1902, it was 2.76 inches on 11 days; in 1903, 2.95 inches on 15 days; in 1904, 4.05 inches on 21 days; in 1905, 1.07 inches on 12 days; in 1906, 2.03 inches on 18 days; in 1907, 1.29 inches on 13 days, and in 1908, 1.16 inches on 20 days. The temperature in the shade ranged from 54° on the 4th to 30° on the 14th. The mean temperature in the screen was 42.2°, compared with 39.0° in 1902, 47.1° in 1903, 40.4° in 1904, 43.6° in 1905, 39.6° in 1906, 39.6° in 1907, and 44.9° in 1908. Hail showers fell on the 9th and 11th; sleet and snow on the 27th and 28th.

Mr. Robert O'Brien Furlong, C.B., recorded a rainfall of .62 inch on 8 days at Cloneevin, Killiney, Co. Dublin. The maximum in 24 hours was .31 inch on the 28th. The average rainfall for February in the 24 years, 1885–1908, inclusive, was 1.752 inches on 14.2 days. Since January 1, 1909, 1.55

inches of rain have fallen at this station on 20 days. The smallest measurements in February at Cloneevin have been—.03 inch on 2 days in 1891, .41 inch on 11 days in 1887, and .46 inch on 7 days in 1895.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was only .735 inch on 8 days. The heaviest fall in 24 hours was .140 inch on the 27th.

At Clonsilla, Greystones, Dr. Arthur G. Price recorded only .55 inch on 6 days, .15 inch being measured on the 27th. The mean temperature of the month was 42.5°, the extremes being—highest, 54°, on the 3rd; lowest, 26°, on the 13th.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. Launcelot T. Burra measured .712 inch of rain on 6 days, the largest daily measurement being .250 inch on the 8th. The mean temperature at the Hospital was 41.7°, the extremes being—highest, 54.1° on the 4th; lowest, 24.2° on the 14th. The mean maximum was 46.2°, the mean minimum, 37.2°.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was .813 inch on 7 days. The greatest fall in 24 hours was .305 inch on the 28th. The mean shade temperature was 38.0°, the extremes being—highest, 50.0°, on the 2nd; lowest, 22.0°, on the 13th.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 4.91 inches on 12 days, the greatest fall in 24 hours being 1.58 inches on the 7th. The rainfall on the 6th, and again on the 21st, was .89 inch. On the 9th .55 inch fell; on the 8th, .42 inch. With the exception of these five days, the month was a very dry one—only .02 inch being measured in the period from the 11th to the 20th inclusive. And yet the total rainfall exceeded that of any February in the previous 5 years. In the interval from 9 p.m. of the 6th to 9 p.m. of the 7th 2.30 inches were recorded.

In the City of Cork, Mr. William Miller registered 2.35 inches of rain on 11 days, the largest measurement in 24 hours being .90 inch on the 7th. The rainfall was 1.08 inches below the average. During the first two months of 1909 the rainfall was 4.44 inches, or 3.19 inches below the average. The thermometer in the screen rose to 52° on the 3rd, and fell to 22° on the 14th. The mean temperature was 39.6°, or 2.8° below the average for the month in 25 years.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Sanatorium Chart.

THIS Chart has been designed by the Superintendent of a large Sanatorium in order that the particulars of each case may be kept uniformly from day to day for three months, and be available at any moment for reference. It can be obtained singly, or bound in books of twenty-five, at the following prices :—Singly, per dozen, 1s. 3d. ; per 100, 7s. 6d. ; per 1,000, 70s. Bound in books of twenty-five, with paper wrapper, 2s. 3d. each. These are bound at the head and open perfectly flat to facilitate use. The publishers are Messrs. Bale, Sons & Danielsson, Oxford House, 83–91 Great Titchfield Street, London, W.

Vaccines for Acne.

MESSRS. PARKE, DAVIS & COMPANY, Manufacturing Chemists, Beak Street, Regent Street, London, W., have submitted for our inspection three new vaccines issued by the Department for Therapeutic Inoculation at St. Mary's Hospital, W., under the direction of Sir A. E. Wright, M.D., F.R.S., for whose products they are the sole distributing agents to the medical profession. Two of these vaccines are provided for the treatment of varying forms of acne. The Mixed Vaccine for Acne contains 200 millions staphylococci and eight millions acne bacilli per c.c., and is applicable for cases in which the staphylococcus is playing the more important part, as those in which the lesions assume a subfuruncular form. The Acne Bacillus Vaccine contains acne bacilli alone (eight millions per c.c.), and is applicable for cases in which the staphylococcus, if present, is but a subordinate factor, as in non-pustular forms with comedones as a principal feature. The needs of suppurative forms of acne are met by the Staphylococcus Vaccine (in dilutions of 100, 200 and 500 millions per c.c.) which has been supplied for some time past. The third new vaccine—Neoformans Vaccine—is issued for use as an auxiliary to other treatment of cancer, of which it is found to relieve pain by suppressing local inflammation, whilst it also appears to prolong life by diminishing the cachexia. It is not claimed for it that it is a curative agent. It is prepared from the Micrococcus neoformans of Doyen, of which it contains thirty millions per c.c These vaccines are issued in bulbs of about 1 c.c., and also in bottles of 25 c.c.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIV.—*Local Anæsthesia in Minor Surgery.*[a] By W. I. DE C. WHEELER, F.R.C.S.I.; Surgeon Mercer's Hospital, Dublin.

YOUR President was good enough some months ago to invite me to make a communication to this Association before the end of the Session. The difficulty of choosing a subject was great, for although I have had as much as my share of interesting surgical cases, the Association has already been well supplied with material of that sort, and pathological specimens, however interesting a communication they may afford, appeal only to a limited number of the members. In selecting as a general subject Local Anæsthesia I thought of the chemical, anatomical, therapeutical, medical, and surgical problems involved, and that a free discussion on these various subjects might be of mutual interest. Roughly speaking, I have performed about two hundred operations without the aid of a general anæsthetic, including the radical cure of hernia, hydrocele, varicocele, amputations of fingers and toes, removal of numerous non-malignant and

[a] A paper read before the Dublin University Biological Association.

malignant tumours, large numbers of varicose veins, and almost every operation which comes under the category of minor surgery. The general results of these experiences, combined with a sketch of the scientific aspect of the question, I propose to bring before you in this paper.

The manner of employing local anæsthesia can be divided into two great classes - the Infiltration and the Regional methods. Of these two, the infiltration is by far the more commonly used, being simple and requiring no special anatomical knowledge of the sensory nerves. Against the infiltration method it may be said that the operation is prolonged, and the results as regards pain more uncertain than when a general anæsthesia or the regional method is employed. The advocates of the infiltration method are notably Schleich and Kocher. It consists in the infiltration of the tissues, layer by layer, with a solution of a local anæsthetic, injecting first into the cutis, producing a blanched and œdematised wheal, or, since the introduction of adrenalin, the needle may be passed subcutaneously, and the vitality of the skin consequently not interfered with. As the operation proceeds, layer by layer is infiltrated, bearing in mind that nerves, periosteum, and parietal peritoneum are extremely sensitive; tendons, muscles, and fasciæ, on the other hand, can be divided with impunity. It is not quite correct to say that infiltration of the tissues produces local anæsthesia, analgesia is the proper term, because though no pain is felt, the patient can often say when a knife or when a scissors is being used, and so sensation is not completely lost. This effect is produced by deadening of the superficial nerve endings. I will pass over, for the present, the various drugs employed and the details of technique. Meantime, the subject of the second method - regional anæsthesia - can be summarily dealt with. By regional anæsthesia, Corning and Oberst, who advocated it, meant the direct introduction of an anæsthetising fluid into the great nerve trunks. This

produces a physiological nerve block arresting afferent and efferent impulses. The method requires an accurate anatomical knowledge of the course and distribution of the sensory nerves, and, in addition, infiltration of the tissues must be employed in order to expose and inject the nerve. For these reasons the method is troublesome: but, if employed, produces the most perfect anæsthesia. Crile amputated the leg by injecting cocaïn into the great sciatic and anterior crural nerves, and the same operator removed the arm and portion of the shoulder girdle by injection of the brachial nerve trunks (Struthers). The physiological block, to which I have alluded, not only prevents pain, but is supposed to diminish or obliterate shock, on the supposition that the latter is caused by stimuli or impressions conveyed along sensory or mixed nerves, especially when the patient is under a general anæsthetic. On these grounds some enthusiasts, when employing a general anæsthetic, injected the large nerve trunks with cocaïn in order to prevent the passage of these stimuli and impressions, and so diminish shock. It is necessary, when carrying out the regional method of local anæsthesia, to use a stronger solution than is required for infiltration work, to wait a longer time for the action of the drug to be produced, and, as mentioned before, to have a good anatomical knowledge of the distribution of the nerves. Braun, of Leipzig, reached a compromise between the Infiltration and Regional Methods by his discovery that the use of an injection deeply *in the region of the nerve* produces an anæsthesia as complete as if the nerve itself had been infiltrated. The success of this method largely depended upon the introduction and addition of suprarenal extracts to the drugs employed. The operation became more bloodless, less toxic, and the anæsthesia more complete. Adrenalin, in fact, produces the same result as described by Schleich and Corning, when these workers adopted the use of a tourniquet. A tourniquet applied above the site of injection also renders the operation more bloodless, less toxic, and more

anæsthetic. I may here allude to a most recent and novel method of producing local anæthesia introduced by Bier, of Berlin.

Here is the procedure he adopts, say, for an operation of excision of the knee :-

The leg is elevated to empty it of blood, a tourniquet is applied above and below the site of operation, a large vein, like the internal saphenous, is isolated between the tourniquets and divided. The nozzle of a syringe is introduced into the distal portion of the vein, and a local anæsthetic is injected. The fluid can neither go above nor below the region to be operated upon, being limited by the tourniquet, and is driven into the venous radicles, anæsthetising the adjacent nerves. A sufficient time is allowed to elapse and the operation is commenced. Complete excision of the knee may be painlessly performed, but before closing the wounds he again inserts a syringe into the original opening of the vein, and injects saline solution, the fluid pouring out through all the divided veins in the operation area like water from the rose of a watering can.

I may now pass on and mention some of the various drugs employed Cocaïn, eucaïn β, tropa-cocaïn, stovaïn, and novocaïn. These are the best known. The last drug I personally have used combined with adrenalin, to the exclusion of the others, since its introduction. Cocaïn is still very largely employed, but it cannot be sterilised efficiently without destroying its properties. Its toxic disadvantages are well known: but in its favour it may be said that it is more diffusible amongst the tissues, consequently more immediate in its action, and it has the additional advantage over all, except novocaïn—it is a vaso-constrictor.

In my early experiences I have had three cases of cocaïn poisoning, though dilute solutions and non-poisonous doses were employed. One case is worth mentioning. The urethra was injected with about one drachm of a one per cent. solution while endeavouring

to relieve acute retention of urine. Not half a minute had elapsed when the patient showed signs of mental excitement, complained of cold, perspired profusely, and went into a state of delirium, with tonic spasms. The administration of stimulants was begun, and the case ended in recovery. Simon recorded a similar case, one of sexual neurasthenia, in which he used less than one grain of cocaïn to anæsthetise the urethra. There was a fatal result. If cocaïn is used, one-half per cent., or a much greater dilution, is sufficient for infiltration work. One per cent. should be the maximum strength even for regional anæsthesia. Patients will tolerate between two and three grains introduced in dilute solutions, but this amount must be looked upon as dangerous. As regards eucaïn, it has the disadvantage of being a vaso-dilator. It produces an analgesia only after an interval of about fifteen or twenty minutes; but it can be boiled, and is practically non-toxic in doses of from 2 to 6 grains. With stovaïn and tropa-cocaïn I have had no experience. Novocaïn, by the aid of which I have performed about two-thirds of the operations alluded to, has, in a word, all the advantages and none of the disadvantages of cocaïn. The solution I use has been until recently made by dissolving the commercial novocaïn adrenalin tablet in 7 drachms (25 c.c.) normal saline solution. This makes a one-half per cent. solution. Lately half this strength has been found adequate, and the tablet dissolved in 14 drachms. Three tablets that is to say, 42 drachms of a quarter per cent. solution can be used with impunity; but such an amount is never required. Novocaïn may be prescribed and kept for use in solution, a few drops of adrenalin being added after the former has been boiled, care being taken to wipe the rim of the neck of the adrenalin bottle with some carbolic lotion, lest some infective organisms be carried into the novocaïn solution. I have referred to the great use of adrenalin. It enables the regional method to be adopted without actually exposing the nerve, and since its introduction the infiltration

method can be employed successfully by injecting under the skin instead of into the skin—an obvious advantage. Curiously enough, against the opinion of all other writers, Schleich held that the fluids used for local anæsthesia should not be isotonic with the tissues, and should be cold. The reverse is really the case. In order to prevent irritation and lowering of the vitality of the tissues and consequent sloughing, the solutions used should be isotonic and injected at about body heat. Isotonic fluids do not swell the tissues or withdraw water. In this connection the freezing-point of body fluids has been ascertained, and a solution of cocaïn, eucaïn, or novocaïn, should approximate them in this respect. It has been found that these drugs, dissolved in .75 or .8 saline solution make the required isotonic fluid. For practical purposes the familiar normal saline, one drachm to the pint, is sufficiently accurate. The effects of injection of fluids into the skin may be exampled as follow: 1. Three or four c.c.'s of any fluid produce an endermic wheal; the sensibility of the wheal varies according to the substance injected. 2. Normal salt solution produces an endermic wheal painlessly, but the sensibility remains unaltered. 3. Water, on the other hand, produces pain when injected, but in a few seconds complete anæsthesia supervenes. 4. A one in 10,000 isotonic solution of cocaïn produces painlessly an insensitive wheal. (Struthers.)

It is impossible to enter into a logical controversy on local *versus* general anæsthesia. Neither should be employed to the exclusion of the other. The disposition and wish of the patient and the nature of the operation, combined with personal experience, must guide every operator. Some argue that general anæsthetics are nearly always preferable on the grounds that the patient knows or sees what is going on, and to an untrained mind the paraphernalia of aseptic technique, the sight of instruments and blood, is more distressing than the experience of taking ether or chloroform. These points are undoubtedly worthy

of consideration, but you will find patients to whom a general anæsthetic is repugnant, especially amongst medical men; you will meet cases where you dare not give ether or chloroform on account of the age or general condition of the patient, and, provided you are not dealing with a hyper-sensitive or hysterical individual, local anæsthesia will be the method of choice. The preparation and the operation take longer, but the patient can go straight from the operating theatre to eat a good dinner, envied by his vomiting friend who is recovering from the effects of ether, and possibly already has developed chest complications.

In my own list of cases I can produce only one of abdominal section, though I would have no hesitation in opening the abdomen under a local anæsthetic whenever the occasion should arise.

To relieve an intestinal obstruction in desperate cases by the insertion of a Paul tube, or to drain the abdomen in cases of ruptured appendix or gastric ulcer when the patient is apparently moribund, local anæsthesia is not only the method of choice but unquestionably should always be employed.

With regard to abdominal sensitiveness, organs innervated by the vagus and sympathetic nerves—that is to say, kidneys, bladder, stomach, gall-bladder, intestines, mesentery, &c., all, in fact, below the level of the inferior laryngeal nerve—have no nerve apparatus for the perception of pain, touch, heat, or cold. This seems a sweeping statement, and a question at once arises, how do diseases of abdominal organs occasionally produce such intense pain? The answer is not far to seek, for pathological conditions produce mechanical, chemical, or inflammatory—that is to say, bacillary or toxic—irritation of the cerebro-spinal nerves, through which pain is transmitted. The sensitiveness of the parietal peritoneum is probably due to twigs from the intercostal lumbar and sacral nerves ramifying in the sub-serous coat. The secret of success in abdominal operations is to anæsthetise the abdominal

wall well and not to tear or pull the parietal peritoneum. In these, as in all operations, do not ask the patient if you are hurting him—questions suggest uncertainty and produce imaginary pain. The use of sharp instruments must always be a substitute for tearing and pulling or blunt dissection of any kind.

As the effects of a local anæsthetic begin to wear off in from one to three hours, a reactionary pain sometimes sets in. It may be defined as increased sensibility of sensory nerves due to congestion following anæmia of the part. Schleich added a little morphin to his solutions to diminish reactionary pain, but any effect it may have is general, and the same as is given hypodermically afterwards—a necessity which in my experience has never arisen. Some say that this reactionary pain is no worse than ordinary wound pain, and does not occur if the fluids used are isotonic. In my cases there has always been a little after-pain, whether I used isotonic fluids with or without adrenalin or whether I employed a tourniquet or not. It is always bearable, and, as far as I can see, no worse than the pain one sees after every-day operations. Reactionary shock has also been described; but this, like the pain, may be "a false creation" of the mind of enthusiastic workers. Spinal anæsthesia does not come within the scope of the paper. I have seen it many times employed on the Continent, and also by Barker in London, and I believe the method has a distinct but limited sphere of usefulness.

Illustrative Cases.

I.—P. R., aged seventy years; operated upon in November, 1907, for combined hernia and hydrocele. Bassini's operation and excision of the tunica vaginalis.

Usual skin incision after subdermal infiltration of the tissues, with ½ per cent. isotonic novocaïn solution.

Region of external abdominal ring well injected with fluid, and needle passed under the aponeurosis into the internal oblique and transversalis muscles.

One syringeful injected into and around the cord, and about a drachm into the interior of the hernial sac.

The operation was painless, the old man conversing on general topics during the various manipulations.

II.—F. D., aged twenty-eight; operated upon October 10, 1908. Theirsh skin grafts removed from thigh to cover a large ulcer on the leg. Six square inches of the skin on the thigh were anæsthetised by endermal injection of novocaïn, and the skin was shaved off with a razor to the tops of the papillæ and nerve endings. The operation was quite painless.

III.—J. D., operated upon 5th September, 1908. Machinery accident. Finger amputated by Regional Method while the patient sat on a chair and described the accident.

IV.—E. B., aged sixty; operated upon September, 1908. Ruptured quadriceps extensor tendon. Subdermal infiltration of the tissues transversely across the site of injury. Tendon sutured with silk. Some pain was felt when passing the needle through the periosteum of the patella.

V.—E. G., operated upon November, 1908. Needle embedded for some weeks deeply in relation to carpo-metacarpal joints. Removed painlessly after some difficulty by means of subdermal novocaïn infiltration.

VI.—D. R., operated upon April, 1909. Varicocele removed. Novocaïn injected under the skin for about three inches in the region of the external abdominal ring. Cord hooked up and operation completed in the usual way. No pain whatever was felt. During operation a drachm of solution was injected into the spermatic cord.

VII.—E. B., operated upon September, 1908. Hammer toe rectified under regional anæsthesia. One per cent. novocaïn solution injected into region of digital nerves. Tourniquet employed. Toe swelled distal to tourniquet as fluid injected. Ellipse of skin bearing the corn removed. Excision of head of proximal phalanx. No sensation of pain during operation.

VIII.—A. D., operated upon November, 1908. Varicose veins. Infiltration of subcutaneous tissues superficial to vein in different portions of the leg. Anæsthesia complete.

IX.—Cellulitis of neck.

X.—Epithelioma of lip.

ART. XV.—*The Irish Recommendations of the Royal Commission on the Care and Control of the Feeble-minded.* (*A Digest.*) [a] By W. R. DAWSON, M.D., F.R.C.P.I., Medical Superintendent, Farnham House, Finglas, Dublin; late Medical Investigator to the Royal Commission.

THE original mandate to the Royal Commission was "to consider the existing methods of dealing with idiots and epileptics, and with imbecile, feeble-minded or defective persons not certified under the Lunacy Laws," and "to report as to the amendments in the law or other measures which should be adopted in the matter," due regard being had to economy. This is the only instruction applying to Ireland, but as regards England and Wales a further warrant was issued in 1906, directing an inquiry "into the constitution, jurisdiction and working of the Commission in Lunacy and of other Lunacy Authorities," and requiring a report as to any amendments or changes which might be thought advisable. The Royal Commission, however, while debarred thus from making actual recommendations regarding the reconstitution of lunacy administration in Ireland, very properly decided to issue, in the form of suggestions, their views on the manner in which this important Department should be brought into line with the reconstructed Department of England, due regard being had to local differences.

In prosecution of their instructions the Royal Commission heard an enormous amount of evidence, visited a large number of institutions—not only in the three kingdoms but also on the Continent and in America—and appointed medical men to investigate certain typical areas, with a view to ascertaining the numbers of mentally abnormal persons not under certificates. They also obtained information concerning foreign and colonial methods, and considered the reports of former Royal Commissions. The data on which their conclusions are based are contained in the first seven volumes of their report, and constitute a veritable mine of information

[a] Read in the Section of State Medicine, Royal Academy of Medicine in Ireland, February 5th, 1909. [For discussion on this paper see p. 383.]

on all points bearing on the subject. As regards Ireland, the Royal Commission examined twelve witnesses, besides obtaining informal evidence from a large number of persons; visited the country on two occasions; and carried out four medical investigations—in Galway, Cork, Belfast and Dublin—the last of which I had the honour of being invited to undertake.

As the result of these investigations the Royal Commission estimate that there are in Ireland 25,415 mentally defective persons, or 66.05 per 10,000 of the population, in addition to the 25,050 insane (56.18 per 10,000) already in institutions under certificates. Of the former more than one-third are under 16 years of age, and of these again 94 per cent. would require to be provided for. The numbers in proportion to the population are very much higher than in England and Scotland. Of the different classes of feeble-minded it is estimated that there are in Ireland 624 idiots, 2,811 imbeciles, 4,013 adult feeble-minded, and 6,688 defective children, together with 8,900 uncertified insane and 1,200 epileptics outside of asylums (in addition to 1,120 certified epileptics). Taken together with the asylum patients this gives the appalling total of over 113 per 10,000 for Ireland of mentally defective or epileptic persons. Of these it is estimated that no less than 66.06 per cent. require immediate provision, as against 44.45 per cent. of the English and 34.57 per cent. of the Scottish defectives. "Thus Ireland," in the words of the Royal Commission's Report, "unhappily burdened as it is with its comparatively undue proportion of certified persons of unsound mind, is found to be in a similarly unfortunate position as regards its proportion of mentally defective persons other than those of unsound mind, and what is even more serious, in view at any rate of its poverty, it is also confronted with a similarly undue proportion of cases in urgent need of provision."

Furthermore, there is no existing means in this country of dealing with any of these cases outside of the asylums, if we except the Stewart Institution, which provides for about 100 imbeciles and idiots.

In dealing with the problem of the mentally defective the Royal Commission adopted certain principles, which are briefly as follow :—

(1) Persons who cannot take part in the struggle of life owing to mental defect should be afforded suitable special protection by the State.

(2) The real ground of the claim for help of such persons is their mental condition, and not their poverty or crime. They should, therefore, be looked after by the County Councils.

(3) It is necessary to ascertain who are mentally defective, and to bring them into relation with the local authority for the care of such persons.

(4) The protection of the mentally defective person should be continued as long as necessary for his good. This involves extension to all the mentally defective of advantages now given [in Ireland] only to lunatics.

(5) To supervise local administration a Central Authority is indispensable.

(6) In regard to the protection of property, all mentally defective should have like privileges.

(7) There should be the closest co-operation between the judicial and administrative authorities.

These general principles, as applied to Ireland, may be restated as follows :—

(1) The establishment of a strong "Central Authority," to deal not only with lunatics but with all classes of mentally defective persons, so as to co-ordinate the work of the various agencies dealing with them, such as prisons, reformatories, workhouses, inebriate homes, schools, or voluntary institutions. This step, being beyond the scope of the Irish reference to the Royal Commission, is only *suggested*, but it is in accordance with the Recommendations of the Vice-Regal Committee on Lunacy Administration in Ireland, 1891. It is further suggested that the Central Authority should consist in the first instance of the two Inspectors of Lunatics, together with the Lord Chancellor's Registrar in Lunacy as Chairman, and assisted by the appointment from time to time, as required, of subordinate inspectors.

(2) A Statutory Committee of each County Council should constitute the "Local Authority" to deal with all mentally defective persons, as well as with sane epileptics.

(3) Amendment and extension of Lunacy Law and Procedure accordingly.

(4) The creation of a system of care and control, to watch over mentally defective persons from an early age during their whole lives, either with or without the co-operation of their relations.

The definite recommendations and suggestions of the Royal Commission are based on these principles, and I shall now endeavour to summarise them as far as possible.

In the preamble it is stated that "It is not intended that the maintenance at the public expense of the mentally defective or of epileptics . . . should be extended to those who, either at their own cost or at that of their relatives and friends, can be otherwise suitably and sufficiently provided for." As regards the rest, three methods are recommended, subject to statutory safeguards—viz., those of oversight, certification and detention—the particular method to be selected in each case "at the advised discretion of a responsible Committee."

As regards the classes of persons to be dealt with, Recommendations III. and IV. propose that the statutory use of the terms "lunatic" and "asylum" be discontinued, the term "hospital" being substituted for the latter; and that the term "mentally defective" be used to cover all forms of mental abnormality sufferers from which are to be placed under the Central Authority. Such persons are classed as follows:—

(1) "Persons of unsound mind"—*i.e.*, persons who require care and control owing to disorder of the mind, and are consequently incapable of managing themselves or their affairs, and are not included in classes (2), (3), (4), (5), (6), (7), (8), and (9) below.

(2) "Persons mentally infirm"—*i.e.*, persons who, through mental infirmity, arising from age or from the decay of their faculties, are incapable of managing themselves or their affairs.

(3) "Idiots"—*i.e.*, persons so deeply defective in mind from birth or from an early age that they are unable to guard themselves from common physical dangers, such as, in the case of young children, would prevent their parents from leaving them alone.

(4) "Imbeciles"—*i.e.*, persons who are capable of guarding themselves against common physical dangers, but who are incapable of earning their own living by reason of mental defect existing from birth or from an early age.

(5) "Feeble-minded"—*i.e.*, persons who may be capable of earning a living under favourable circumstances, but are incapable from mental defect existing from birth or an early age (*a*) of competing on equal terms with their normal fellows, or (*b*) of managing themselves and their affairs with ordinary prudence.

(6) "Moral Imbeciles"—*i.e.*, persons who from an early age display some mental defect, coupled with strong vicious or criminal propensities on which punishment has little or no deterrent effect.

(7) "Epileptics"—*i.e.*, persons who, being epileptic, are also mentally defective.

(8) "Inebriates"—*i.e.*, persons who, being inebriates, are also mentally defective.

(9) "Deaf and Dumb," or "Blind"—*i.e.*, persons who, being deaf and dumb, or blind, are also mentally defective.

Lastly, it is the intention that provision for sane epileptics should be under the same control as that for the mentally defective (LXVIII.).

As the Central Authority, to control the whole supervision and regulation of such persons, it is recommended (I. to XVII.) that there should be a Board to be called "The Commission for the Care of the Mentally Defective," consisting of:—

(1) The Registrar in Lunacy, as *ex-officio* member and Chairman.

2. Salaried members, who shall be qualified medical men, preference being given to those with expert knowledge.

3. Honorary members, appointed for a term of years,

from such persons as combine interest in the mentally defective with qualifications likely to be of service to the Commission.

The duties of the Commission would include the general protection and supervision of mentally defective persons and regulation of the provision made for their accommodation and maintenance, care, treatment, education, training and control. All mentally defective persons dealt with would be registered at the office of the Commission, as would all institutions or houses where such persons are maintained, which would further be licensed solely by the Commission. If found necessary, the Commission would be assisted by Medical Inspectors.

For the local carrying out of the scheme of provision, the Council of each County and County Borough would constitute the Local Authority (XVIII. to XXXVI.), exercising their powers through a Statutory Committee called "The Committee for the Care of the Mentally Defective," which would include additional co-opted members with special knowledge or experience, one, at least, if possible, to be a woman. The Council, however, may not delegate to the Committee the power of raising a rate or borrowing money. The duties of such Local Authority would include making "suitable and sufficient provision for the care and control of the mentally defective in the County or County Borough;" receiving requests for provision and care from the parents and guardians of such persons; enquiry into them; and, if necessary, the making of such arrangements as shall be judged best for each particular case, "either registering the case only or having it certified also, or taking steps for its certification and detention, or placing it in an Institution . . . or under private care or family guardianship, or leaving it to the care of its parents or guardians, with or without the appointment of a friendly visitor, or taking any other measures that seem to them desirable." To assist the Committee, a specially qualified medical officer or officers should be appointed, and also in each district one or more "certifying medical practitioners." If desirable, two or more Councils may delegate their duties to a Joint Committee.

As regards Finance (XXVIII. to XXXV.), the present grants-in-aid made from the Imperial funds towards the cost of certified lunatics would be abolished, and the whole cost of maintenance, &c., of *all* mentally defective persons and of sane epileptics would be borne by the Councils, assisted by new grants from the Exchequer, either :—

(1) As an annual lump sum, varying (*a*) according to the ratio of local expenditure to an approved standard of proper and economical expenditure ; and (*b*) according to the assessable value per head of the accommodation of the district, or :—

(2) As a maintenance grant, in addition to the present Exchequer contributions, based on the excess of the numbers provided for above those provided for on Jan. 1, 1908, and amounting to one-half of such excess, if properly incurred.

Such payment would depend on a certificate from the Commission.

In addition to the above, the Exchequer should pay for a term of years a grant in aid for the provision of necessary accommodation. It may be noted here that the estimated additional expenditure for fully carrying out their recommendations has been placed by the Royal Commission at £176,075 annually.[a]

Grants so made may be used at the discretion of the Council (but subject to the approval of the Commission) in any way they think best, including contract with any public authority or agency, private agency or person, for the care, education, training or maintenance of mentally defective persons or sane epileptics. All plans for buildings and all estimates must be passed by the Commission, the Local Government Board, and the Lord Lieutenant.

A most important recommendation (XXXIV.) is the establishment of a system of settlement based on residence by Counties and County Boroughs, which ensures that such afflicted persons will be returned to the localities to which they are properly chargeable.

[a] The District and Auxiliary Asylum expenditure for 1907 was £521,175, of which local rates contributed £323,822.

Proceeding next to the question of Guardianship and Supervision, the Royal Commission recommend (XXXVII. to XL.) that any mental defective, belonging to classes (3) to (9), under twenty-one, who is not being properly treated, may be taken under the guardianship of the Council (subject to certain safeguards) until the age of twenty-one is attained, when the Commission is to decide what is to be done further. In the case of similar persons who are under suitable parental or other control, a voluntary arrangement is, if possible, to be arrived at for the appointment of a Friendly Visitor, who, with the Committee, is to be consulted about any proposed change. Such persons may be placed by a parent, or guardian, or the Committee, in an institution on one medical certificate without the intervention of any judicial authority, and may be retained after reaching the age of twenty-one by consent of the Commission. In the case of such persons over twenty-one years of age, the Committee may act as next friends in order to secure provision.

In order to bring mentally defective persons under the cognizance of the Committees, it is recommended (XLIV.) that it be the statutory duty of the Medical Officers of various public authorities and institutions, Relieving Officers, Police, Managers of Reformatory and Industrial Schools, Homes for Inebriates, Charitable Institutions and Societies, and Naval and Military Authorities, to notify all cases of mental defect coming to their knowledge in course of duty; and that it shall be the duty of Medical Officers in charge of institutions for persons of unsound mind to report to the Committee cases of repeatedly recurring insanity "with a view to care and control being exercised in regard to them, if desirable, in some other and more effectual manner."

It is recommended (XLVII.) that every institution must have a medical officer; and that in an annual revision of mentally defective cases in institutions, to be undertaken by the Committee, the certificate of the medical officer shall be sufficient for continuance of residence in the institution; on the other hand, the Committee may discharge on his certificate.

Next, with reference to the accommodation to be provided, the Royal Commission are satisfied that Receiving Houses or Reception Wards ought to be established for the admission of acute cases not likely to need prolonged detention, and recommend (LIII.) that Boards of Guardians and District and Borough Councils should be obliged to provide such accommodation on request of the County Council on terms to be arranged, and subject to appeal to the Lord Lieutenant. It is further advised that one of the medical officers or practitioners appointed by the Committee must always attend when a patient is admitted to such a house or ward, and sign a certificate. The form of immediate certificate or order for admission to such house or ward is left to the discretion of the Commission.

The procedure for the admission of mentally defective persons into institutions, and their detention therein, is to be completely altered (LVI.) from the existing procedure under the Lunacy Acts. The same procedure is to be adopted for private and pauper patients, except as regards those found of unsound mind by inquisition. There are four procedures recommended, viz.:—

(1) Reception Orders on Petition.—A petition must be presented by a near relative, or by a Medical Officer authorised by a Committee, accompanied by a statement of particulars and two medical certificates, to a Judicial Authority—Justice of the Peace, County Court Judge, or Resident Magistrate—who may see the patient before signing the order for his admission. If he does not see the patient, the latter can demand the right to be seen by another Judicial Authority.

(2) Urgency Orders.—In case of urgency a patient may be detained for seven days on an order signed by a near relative, or by the Medical Officer of a Committee, and one medical certificate.

(3) Summary Reception Orders.—If a constable, medical officer, or relieving officer of a Union, or representative of a Committee, knows of a mentally defective person who is not properly cared, he must report to a Judicial Authority, who shall direct a Medical Officer of a Committee to visit such person,

and shall then proceed as if a petition had been presented, and may order him to be sent to a reception house or ward, or to an institution, for not more than fourteen days; within which time he must be sent on to the permanent institution or house most suitable to his case. Much the same procedure is followed in the case of a mentally defective person found wandering at large, who is to be arrested and taken before a Justice. In case of need, however, a constable or relieving officer may, pending proceedings, arrest such person and take him to a reception ward or house, where he may be detained for three days.

(4) Reception Order by two Commissioners, with a medical certificate by a medical practitioner to be called in.

Passing now to the younger mental defectives, it is recommended (LVII. to LXIV.) that the Local Authority should be made responsible for the manual and industrial and other training of all such children as are not otherwise suitably provided for, it being the duty of the managers of National Schools, or the Education Authorities, to notify to the Medical Officer of the Committee any children of school age thought to be mentally defective; while any parent who wishes his child to be dealt with must be afforded facilities for having the child examined; the Medical Officer in either case to report to the Committee. Parents are to be compelled to allow any child, alleged to be mentally defective, to be examined, and if found to be so they must cause the child to attend a special class or school, or to reside in an institution, so long as the Committee think necessary.

Some special recommendations are made as regards criminals who are mentally defective (LXV. to LXVII.), and without going into these in detail it may be shortly stated that the Courts would thereby be empowered to send such criminals to a receiving house, reception ward, or other institution, or to accept recognisances from an officer of the Committee as security, or from another surety, provided the criminal remains under the control of the Committee. The recommendations, in fact, provide for the proper treatment of the criminal as a mental defective either before or after conviction or while

undergoing sentence; and in cases tried at Assizes and Quarter Sessions, the Court may order the person to be examined, and, if necessary, certified, even though he be acquitted.

An important recommendation (LXIX.) is that the Inebriates Acts should be so altered as clearly to lay upon the Committees the obligation of dealing with such inebriates as are mentally defective, and it is also suggested that it should be considered whether the existing law sufficiently protects mentally defective persons against sexual crime (LXXIII.).

Lastly, it is recommended (LXXIV.) that the existing power vested in the Lord Chancellor of dealing with the property of insane persons of small means, without an inquiry under a Commission in Lunacy, should be extended to the property (irrespective of amount) of all mentally defective persons, or some procedure adopted similar to that provided by the English Lunacy Act of 1890.

Such are the leading recommendations of the Royal Commission as regards Ireland; but it must further be stated that nearly every detail is in working subject to the decision of the Central Authority, which, with only one or two exceptions, has the final voice in the matter. A few words may be added as to the nature of the "Institutions" so often referred to, which may be gathered from other parts of the Report. They are, briefly, day schools or classes, or residential institutions on industrial school lines for defective children; a colony for epileptics; cheap institutions in the form of auxiliary asylums and annexes for the harmless insane; existing asylums for acute and troublesome cases; and reception wards or houses for such as are likely to require very short detention only. The adoption of the Boarding-Out or other system of family care is not definitely recommended for Ireland, but the powers accorded to the Central and Local Authorities would seem sufficient to enable them to try this, the cheapest of all methods, and, for suitable cases, one of the most efficient.

ART. XVI.—*Remarks on Atrophy of the Testicle.* By CHARLES GREENE CUMSTON, M.D., Boston, Mass., U.S.A.

ATROPHY of one or both testicles may result from the most varied causes, but it must be pointed out that in every case the direct ætiological factor is an orchitis. No matter from what cause the orchitis may develop, it can, under certain conditions, give rise to atrophy of the organ. Foremost among all is gonorrhœal orchitis followed by atrophy. Likewise, there is frequent atrophy of the testicle following a tuberculous or syphilitic orchitis. Sometimes this occurs without any definite manifestation of an inflammatory process, while in others gummata or tuberculomata arise, destroying a portion of the parenchyma, while the remainder undergoes a sclerotic process. In syphilis the primary overgrowth degenerates with a shrinking and hardening of the organ in about 50 per cent. of the cases, after which fibrous induration takes place. The parenchyma is destroyed by contraction of the interstitial tissue; the remaining portion of the testicle will then be found hard and insensible to the touch, usually much smaller in size than its healthy neighbour.

Regarding tuberculosis, it may be said that occasionally a hypertrophy of the testicle may be encountered in phthisical subjects, although apparently there has been no lesion in the organ to account for this. I have seen two cases of atrophy of one testicle in consumptive patients, and consider this a valuable symptomatic sign of tuberculous prostatitis, even when the prostate does not appear diseased. When the testicle is invaded by a tuberculous process, and if the latter gets well without operation, atrophy of the testicle is sure to follow. In one case recorded in literature—that of a man thirty-two years of age, who had been treated for tuberculosis of the testicle—the right gland remained normal in size and consistency, while the left one became small, flabby, and slightly sensitive to the touch. The epididymis was represented by several hard, irregular nodes.

In some few cases of orchitis arising during the course of influenza or typhoid fever, atrophy has been the result. Much more frequent are cases of atrophy following orchitis arising during mumps. Many cases have been recorded in the past by Boyer, and Goubaud long ago stated that in 60 per cent. of cases of mumps he met with orchitis. Curling came to similar conclusions, while Grisolle met with atrophy of the testicle following the orchitic mumps four times in the space of four years. The size of the involved organ diminished to about one-third, and it was markedly indurated. Heller, at the military hospital in Danzig, had the opportunity of observing a small epidemic of mumps, and he found that of ten soldiers who developed orchitis, five resulted in atrophy of the testicle, two cases being bilateral. The affected testes were reduced to about half their size, and were of soft consistency. Charcot published a case of a soldier who had had mumps seven months previously, complicated with orchitis. Later on, one testicle became atrophied, while at the same time hypertrophy of both breasts occurred to such an extent that they attained the size of half an orange. In most cases, however, atrophy of the testicle occurs after the organ has been swollen, running a fairly rapid course, and other than its rapidity is somewhat analogous to atrophy of the kidney following nephritis.

Atrophy following the so-called orchitis of rheumatism has been described only by a few English authors. These very rare cases have been so inadequately studied and incompletely reported that the conclusion must be reached that when atrophy occurs some other factor must be present, and which has been ignored. Merely from curiosity I would point out that Gosselin has reported the case of a youth sixteen years old, who was an excessive masturbator, who presented atrophy of both testicles after a slight attack of inflammation which ran its course with swelling and pain. Curling has recorded similar cases.

As many cases of atrophy of the testicle following a

traumatic orchitis have been recorded I am desirous of entering into this subject somewhat in detail. Not only diseases of the testicle itself, but also inflammatory processes of the coverings of the testicle, may result in atrophy of the organ. This is particularly true of changes arising in the tunica vaginalis on account of the marked disturbances in the circulation to which they give rise, so that sooner or later atrophy develops. It is quite evident that an extreme degree of hydrocele which has lasted for a long time produces considerable pressure on the testicle over its entire surface, and in these cases the organ shows a very characteristic paleness, which has been termed anæmia of the testicle. By constant increase in the pressure the nutrition becomes more and more impaired, and, finally, pressure atrophy results. Many French surgeons have assumed that atrophy is not the result of the continuous pressure, but is the final outcome of an orchitis which has resulted secondarily from the chronic inflammatory process in the tunica vaginalis. The conditions in hæmatocele are similar, because here again the testicle will often be found anæmic and tightly enclosed within a mass of thick membranes. Under these circumstances atrophy soon results.

Finally, I will point out that atrophy of the testicle may occur in elephantiasis, as has been shown by the reports of English physicians at the Leper Hospital in Colombo, as well as the records of French physicians from Madeira. That the internal administration of the iodides can give rise to atrophy of the testicle is purely a myth, and cannot be seriously discussed.

A physiological atrophy of the testicle occurs in advanced life—the so-called senile atrophy. The testicle distinctly diminishes in circumference although the atrophy is less marked than in other glandular organs. This senile change of the testicle may begin as early as the fiftieth year, and is characterised by a pericanalicular sclerosis, the resulting process being an atrophy of the seminiferous tubules with varicose dilatations and cystic

formation of the epididymis. It is probable that the chief change resides in the obliteration of the seminal tubules, and this is the result of a venous ectasis occurring generally between the sixtieth and sixty-fifth year of age. The changes in the seminal canals are, in the beginning, purely mechanical, and it is not until later that a fibrous change in the parenchyma takes place.

I will now consider the purely traumatic type of atrophy of the testicle. Trauma of the testicle may be produced by gunshots, a blow or a knife stab, but the most frequent is certainly a crushing of the organ by some blunt force, such as a kick or falling a-straddle on some hard object. The immediate results of such a contusion are pain of a violent nature, vomiting, dyspnœa, and syncope. In very severe cases cardiac paralysis and death may ensue as the result of severe shock. Orchitis and periorchitis arise almost without exception after contusion, and in the severer cases the direst result is a total or partial gangrene of the affected organ. In the milder cases the symptoms finally disappear by appropriate treatment, and a complete recovery takes place.

But generally speaking the ultimate outcome is atrophy of the organ—in other words, the organ shrinks on account of the destruction of its parenchyma, resulting from the development and pressure produced by the connective tissue. The connective tissue formation may already be manifest within a few days after the trauma, while in other cases it may take years for its development. In some instances the process proceeds intermittently. There are periods of complete remission, which are followed by acute inflammatory recurrences, and this form has been more particularly met with in subjects who, by their work, are exposed to repeated contusions. That atrophy is the common result of trauma is made evident by Monod and Terrillon, who found that it took place in thirty-three out of thirty-nine cases of contusion of the testicle.

Experimentally, Rigal has come to some interesting

conclusions as to traumatic hypertrophy of the testicle. He used rats for his experiments, and crushed their testes between the thumb and index finger. The development of the subsequent symptoms he divides into three stages—namely, (1) This lasts from the first to the fifth day, during which a reaction appears manifested by hæmorrhage, exudation, epithelial proliferation, and the testicle, whose tunica vaginalis is torn, can no longer be felt. The scrotum feels soft and as if it contained no testicle. (2) This stage lasts from the fifth to the twelfth day, and during this time the testicle, which can again be felt, gives rise to adhesions, but at the same time it loses weight, and fatty degeneraton of the epithelium occurs. There is organisation of the connective tissue, reduction in the size of the lumen of the seminal canals, and resorption of the exudate. (3) This stage lasts from the twelfth to the fortieth day. There is complete retraction, and the testicle is manifestly smaller. The retraction is due to the adhesions. The seminiferous tubules are partially wasted and partially filled with the *débris* of the process, so that an irreparable atrophy occurs. Of course, the division into the three stages is merely for experimental purposes, and they merge into each other, but by this description the progress and evolution of the process is well depicted.

In a case of contusion of the testicle—that of a man forty-nine years of age, who had received an injury twenty-two years previously in the left gland—there has been only transitory pain. He then developed a urethral stricture in the membranous urethra. Two years previously he had severe pain, and an abscess developed in the left side of the scrotum, which opened and gave issue to about a teaspoonful of pus. Since then a fistula has remained. The left testicle was found completely atrophied, and was not sensitive to pressure. The epididymis was hard, but not much, if at all, enlarged. The fistula had a tract measuring about one cm. Here is another very characteristic case:—A man, twenty-two years of age, and

who was normally developed up to that time, fell from a considerable height and came astride upon a wheel. Since this accident his testicles have atrophied to such an extent that only rudimentary testicles, penis and scrotum remained. Furthermore, he had no beard, nor hair on the pubes. After the accident he lost all sexual desire. Monod had recorded a case of contusion of the right testicle. Four weeks later the organ was no larger than a hazel-nut, though the epididymis could be easily distinguished from the organ. A detailed report has been recorded by Tournes des Gentes of a man, thirty-one years of age, who received a traumatism which resulted in destruction of the left testicle, while on the right side the integuments of the scrotum were alone injured, but, as they healed by granulation, there resulted a contraction of the scrotum, so that the testicle was pushed up into the inguinal canal. The patient remained potent, but for two and a half years after the accident his sexual desire was less than formerly, and he complained of some pain, especially when the temperature changed. The testicle was the size of a small nut, and the penis diminished in size.

Monod and Terrillon record several cases. The first was that of a man, twenty-four years of age, who had a contusion of the left testicle. The pain was violent, but lasted only for a short time. On the following day a large swelling of the left testicle was seen. It was the size of a hen's egg, and not very painful. Three weeks later the left testicle was found to be half the size of the right one. The second case is that of a soldier who received a contusion of the left testicle, which then became swollen and was very painful. Four weeks later the organ was very atrophic. A male received a contusion of the left testicle by hitting it against an iron post. This was followed by swelling and pain, and six weeks afterwards a distinct atrophy of the testicle was found. A cavalry officer, thirty-five years of age, father of several children,

received a contusion of the left testicle while riding his horse. The swelling was intense and the pain violent. These symptoms subsided within three weeks, but three months later, in the middle of the otherwise normal testicle, a circumscribed, almost painless, very hard and depressed spot could be felt, which was still present a year later, and gave the testicle the shape of a bean. A similar instance has been recorded by Kruche.

Another very characteristic case has been recorded by Poller of a patient, twenty-four years of age, who had a contusion of the right testicle. Two years later the organ was distinctly atrophic, and only about half its normal size. On account of the neuralgia to which this condition gave rise, castration was done, which relieved him of his suffering.

That exceptions to the rule occur, and that in some few cases, even after severe contusion, no atrophy results, is demonstrated by the following case published by Howlett:—A farmer, sixty-five years of age, was run over by a wagon, the wheel passing over the left side of the abdomen, and at the same time crushing the scrotum considerably. Four years later, when the patient presented himself for treatment for spinal trouble, the right testicle was found healthy and in its proper place. The left gland was found outside the inguinal ring, the epididymis lying directly against the latter and appearing to be connected with the testicle by a band which felt like the vas deferens. The testicle itself appeared healthy, was of normal size, and not sensitive to pressure. Velpeau reports a case of stab-wound which resulted in atrophy. He had inserted a trocar into the scrotum and had injured the testicle itself. Reaction was very rapid, and, after recovery, there remained an uneven and partially atrophic testicle. He had mistaken the testicle for a cyst, and consequently must have punctured the entire parenchyma.

Gunshot wounds of the testicle are relatively rare, but in two campaigns Chum found thirteen instances, eight

of which resulted in the loss of the organ and three in atrophy. In the second engagement eleven gunshot wounds were observed, six resulting in loss of the organ, while in five atrophy occurred.

During the old operation for varicocele the spermatic cord was not infrequently injured, and particularly the internal spermatic artery, which resulted in atrophy of the testicle. I mention this on account of the importance of avoiding this blood-vessel when operating on the cord, because atrophy of the testicle is practically sure to result. Lannelongue was able to cure a tumour of the testicle the size of a fist by ligature of the internal spermatic artery, and already on the fifth day a distinct decrease in the size of the growth was noticed. Later on it reached the size of a walnut, was very hard and painless on pressure.

Numerous animal experiments have been undertaken to determine changes in the testicle produced by circulatory disturbances. Thus, Miflet, experimenting with dogs, tied the internal spermatic artery or caused embolus to occur therein. He found that destruction of the testicular parenchyma rapidly resulted, and the testicle quickly atrophied. The atrophy was due to proliferation of the connective tissue. Dubrowo reached the same result in his experiments performed on guinea-pigs, likewise Griffiths in his experimental work on dogs. From the results reached by experiments, Enderlen demonstrated that a temporary ligature of the spermatic vessels, when lasting for twenty-two hours, is sufficient to produce an irreparable atrophy of the testicle, but he does not state what animals he used in his experiments.

I now come to the consideration of another group of traumatic atrophy of the testicle the so-called orchitis from strain. This possibility was advanced many years ago by a number of competent observers, but I must confess that I am very sceptical in respect to this. There are three reported cases in which apparently after great body exertion, especially lifting heavy loads, inflammation of the testicle ensued. In all three cases the patients

were healthy and young, but I cannot conceive how the traumatic influence of a strain could have in itself been the ætiological factor of the orchitis. I am inclined to believe that in these cases residual gonorrhœa was present in the prostate or posterior urethra, and that the action of the strain was merely secondary in the development of the process. To back up my supposition I would point out that in one case the patient had had gonorrhœa eight months previously, and soon after the so-called trauma had occurred a tuberculous orchitis was demonstrated. However, I would say that no less authorities than Monod and Terrillon maintain that there is an orchitis from strain, and to uphold this view they accord the following case:—A labourer, forty-five years of age, had inflammation of the left testicle, which was previously healthy, after lifting a very heavy load. When the patient was seen, the testicle was reduced to about one-fifth of its normal size, and was found near the inguinal ring. It was so painful that castration was resorted to, and this resulted in a perfect cure. The testicle, after removal, was examined, and its parenchyma was found replaced by cicatricial tissue, and the same condition of affairs was found in the epididymis. Max Meyer has also published a case of supposed orchitis from strain which he carefully observed. The patient was twenty years of age, and was thought to have incurred an orchitis from lifting a heavy load. In this case recovery followed in three weeks, and apparently no atrophy resulted.

In extremely frequent cases, where displacement of the testicle has taken place, the organ is atrophied, and it is very apparent that this atrophy can be traced to some previous and permanent traumatic influence. The cases are relatively rare in which a testicle influenced by purely external causes returns into the inguinal canal or abdomen or takes any other abnormal position, and then becomes atrophied from the development of fibrous tissue after it has completed its descent into the scrotum in a normal way. Nicoladoni has collected several such cases where

one or both testicles have been displaced as the result of a slip, gymnastic exercises, or too violent coitus. At all events, one will not be far from wrong if these cases are presumed to have an abnormal laxity of the attachments of the seminal gland.

I will briefly quote the histories of two cases, the first due to Saltzmann. The patient, fifty-five years of age, had a luxatic testis twenty-two years previously which occurred during gymnastic exercises. Afterwards, upon several occasions, the testicle became acutely inflamed, and when the patient came under observation it was found atrophic and located above Poupart's ligament, from which position it could only be slightly moved. The second case has been recorded by Franz. An eighteen year old youth received a violent perineal contusion from a fall. When examined four years later the right testicle was found very atrophic and located in the perineal region on the right, where it had been displaced at the time of the accident. It could be distinctly palpated, and the tail and head of the epididymis and the spermatic cord could be traced in the inguinal canal. The patient stated that since his accident he no longer had erections.

By far the commonest cause of atrophy from displacement is undescended testicle in the inguinal canal. Such a testicle is exposed to frequent injuries, while the pressure of the abdominal walls and movements of the lower limbs cause friction on the organ which in the adult is no longer very movable. From this results an inflammatory swelling, which in turn may give rise to symptoms of strangulation. When these testicles are examined microscopically they give the picture of an ordinary atrophic process resulting from previous inflammatory lesions. A good example has been published by Hubbard. The testicle had been retained in the inguinal canal on account of the shortness of the spermatic cord: the cremaster was also very short. The testicle, which was undergoing degenerative changes on account of constant trauma, was very sensitive both spontaneously and on pressure. A

multilocular hydrocele was also present, and after removal recovery took place. Steer had recorded a case of bilateral inguinal undescended testicle in a patient thirty-nine years of age. Both testicles were atrophic, the penis only slightly developed, while the prostate and seminal vesicles could not be palpated per rectum. The patient was single and stated that he had never experienced sexual desire.

Of great interest are those cases where atrophy of one or both testicles occurs after injury to the brain or spinal cord. In a certain sense they may be classified as traumatic atrophies. As yet the mechanism of the process has not been made clear. Several cases have been mentioned in which after injury to the lumbar vertebræ, or after injuries to the cranium, particularly in the occipital region, within a few months the parenchyma of the testicle disappeared. These atrophies have been observed in cases of paraplegia and in partial dislocation of the first and second lumbar vertebræ and fractures of the spine. In a case recorded by Larry a ball grazed the occipital region of a soldier and remained imbedded in the back of the neck. Atrophy of the testicles resulted. Kocher has reported the case of a man, forty-one years of age, and the father of four children. He fell from a considerable height upon his head. The immediate results were at first only headache and pain in the limbs. Later on twitching occurred, and finally the patient became unable to work. From this time on his sexual powers gradually diminished, and his beard and pubic hair fell out. Eighteen months after the accident it was completely gone. Later on a right-sided hemiplegia developed, and about five years after the accident the left testicle was the size of a hazel-nut, the right one the size of a bean. Gorringe's case is similar. A male, sixty years of age, received a violent blow on the back of the neck and atrophy of both testicles occurred, accompanied by inflammatory symptoms. Monmollin has also mentioned atrophy of the testicle occurring after injury of the cere-

bellum. From all this it may, perhaps, be supposed that a trophic centre for the testicle exists, but in spite of the important work of Morelot the localisation of the centre in the spinal cord or cerebellum has not been definitely demonstrated.

When one testicle is only slightly atrophied it gives rise to very little disturbance, but when both organs are involved there is complete impotency, or, at any rate, there is generative impotency. Under certain circumstances certain psychic disturbances occur, such as loss of courage and activity, and, to a certain extent, changes in the character.

The impotency resulting from extreme atrophy of the testicle, with its unfortunate results on the existence of the individual, is interesting from a medico-legal standpoint. Rieger has recorded the case of a workman, twenty-five years of age, who had both his testicles torn out by machinery. After the wound had healed no psychic changes were noted, and there was no loss of strength or power to carry out his work. However, it was stated that his energy and strength might later become weakened from the loss of his testicles, so that the court granted him very high damages on account of the future possible outcome of his case.

ART. XVII.—*Gas in the Stomach; its Causation and Treatment.*[a] By FRANK KENNEDY CAHILL, F.R.C.S.I.; L.R.C.P.I.; D.P.H.

To quote the words of Professor Reed, "Such an important and obtrusive symptom as 'flatulency' needs to be elucidated and traced to its possible causes in language easily intelligible to every practitioner of Medicine."

At the outset I should like to define with a certain exactitude some terms employed more especially "fermentation" and "putrefaction."

[a] Read in the Section of Medicine, in the Royal Academy of Medicine in Ireland, on Friday, March 26th, 1909. [For the discussion on this paper see page 387].

It is unfortunate that these terms are frequently used as synonyms in stomach literature. Clinically speaking, it seems reasonable to suggest that the term "fermentation" should be used only to designate decomposition of carbohydrates.

There are four kinds of this sort of fermentation found in human stomachs:—(*a*) Lactic acid, (*b*) butyric acid, (*c*) acetic acid, (*d*) yeast fermentation. These form various products which may recombine among one another, the most characteristic products being (1) alcohol, (2) methane, (3) ethylene, besides the acids mentioned.

The term "putrefaction" should be, I think, applied only to the decomposition of albuminous or proteid bodies.

While a few of the same products arise as in fermentation, the main end-products of "putrefaction" may be arranged in three groups:—I. Ammonia, (2) nitrogen, (3) carbon dioxide, (4) sulphuretted hydrogen, (5) methyl-mercaptan, (6) cystin, &c. II. Series of amide acids. III. Aromatic derivatives of benzol—*e.g.*, phenol, cresol, phenol-acetic acid, indol, skatol, tyrosin. We may contrast "fermentation" and "putrefaction," at least so far as they occur in the alimentary canal, roughly as follows:—

Fermentation	Putrefaction
1. Involves carbo-hydrates	1. Involves fats and proteids
2. Produces acids mainly	2. Produces alkalies mainly
3. Numerous bacteria, especially long threads and yeasts or fungi	3. Colon bacillus mainly
4. Mainly in stomach or upper portion of alimentary canal	4. Mainly lower bowel and colon

Having discussed these terms, I now proceed to enumerate the various causal factors in the production of gastric gas mentioned in the literature.

(1) Air swallowing, (2) chemic gastric respiration, (3) mechanic gastric respiration, (4) inorganic production of CO_2, (5) organic production of CO_2 and associated gases, (6) spasm of cardia or pressure from without.

(1) *Air Swallowing.*—Deglutition always carries more or less air into the stomach. Normally the amount is insignificant, but, owing to rapid eating or drinking, gulping down large quantities of food or drink in a single bolus, and undoubtedly to peculiarities in the shape and mode of closure of the fauces and pharynx, so much air may be swallowed as to cause an excess of endogastric tension during and immediately after a meal. This tension is usually relieved by belching.

The differential diagnosis depends upon (*a*) the time of belching, (*b*) the lack of odour of putrefaction or fermentation, (*c*) the absence of the neurotic element, (*d*) the normality of the gastric contents. Treatment depends rather on attention to etiquette than to hygiene or medication.

Though one has never been able actually to demonstrate an anomaly of the fauces or pharynx, yet the occurrence of this trouble in persons whose habits of swallowing are good suggests such a condition, and one is at a loss to suggest an appropriate means of correction.

2. *Chemic Gastric Respiration.*—Benedict and Reed deny the existence of chemic gastric respiration. According to the former, "All active cells absorb oxygen and give off CO_2, not to mention other katabolic products; but it is absurd to suppose that the thick glandular lining of the stomach can be compared to the diaphanous, squamous lining of the pulmonary vesicles. Moreover, respiration is an exchange, not a production, and it is impossible that any appreciable quantity of gas can be eliminated into the stomach by this means." The latter says—"I have not been able to convince myself that gases are secreted directly by the cells of the stomach, as has been claimed by some authors."

On the other hand, Hutchison quotes Evans, who

brought forward evidence, derived from a study of the gas contained in the swim-bladder of fish, in favour of the view that some of the nitrogen may be derived from the blood. Evans (*British Medical Journal*, 1897, page 649) bases his view on the results of two analyses, which to my mind is insufficient. As this method of gas production is common to all stomachs it cannot be a very potent factor in excessive gas production leading to flatulency of a distressing nature. On the other hand, if we do not accept the view that gases are transfused from or secreted by the blood we are at a loss to account for the sudden appearance of gaseous distension after abdominal operations in intestinal obstruction, &c., &c.

3. *Mechanic Gastric Respiration.*—In hiccough there is necessarily a tendency for air to enter the œsophagus and stomach. Since the exciting cause is usually too rapid swallowing or swallowing of dry foods, it seems that hiccough is essentially conservative—nature's relief of the œsophageal spasm by dilating this tube with air, and, so to speak, endeavouring to blow through into the stomach any obstruction that may be present.

In dilated or relaxed conditions of the œsophagus and cardia there may be then a suction into and expulsion from the stomach of air, as well as pulmonary inspiration and expiration.

When, therefore, in neurotic patients, without evidence of gastric fermentation, and with somewhat conspicuous respiratory movements, there is repeated noisy eructation of gas, this condition should be suspected.

There exists a disturbance of innervation, being usually a laryngeal spasm, and, after the primary œsophageal spasm has subsided, a relaxation of the œsophagus.

As to treatment, faradisation of the phrenics and pneumogastrics, forced respirations, anti-spasmodic drugs, and the various devices suggested for the relief of hiccough, may be employed, even when this symptom is absent. Personally I have found "lavage" quite satisfactory.

It is possible that the cases of gastric gas reported as due to gastric respiration in the chemic sense (2) are mainly mechanical or due to the inorganic production of CO_2, the next condition to be described.

(4) *Inorganic Production of CO_2.*—Benedict, in "International Clinics" (1900), lays stress on this mode of production, considering that there is present a supersecretion of gastric, pancreatic, intestinal juices and bile with more or less patency of the pylorus, and that the meeting of hydrochloric acid with alkaline carbonates produces carbon dioxide.

He contends that there are occasional cases in which enormous quantities of nearly odourless gas, shown by simple tests to consist largely of CO_2 given off by belching, and whose origin cannot be accounted for by any of the theories hitherto put forward. (We must remember that this writer denies the existence of chemic gastric respiration.)

The patients are neurotic, the waterbrash or vomited matter or wash water is nearly clear and contains nothing but a little mucus and the usual slight *débris* of a jejune stomach, except that, occasionally, bile pigment may be seen. Effervescence is heard in the region of the pylorus.

Especially do these cases fail to give evidence of fermentation and to respond to antiseptics unless the antiseptics are distinctively sedative.

Our knowledge of the amounts of these secretions and of their percentage of acid and alkali shows that a very considerable amount of gas might be produced.

In these cases the failure of antiseptics will often suggest the proper diagnosis, or, at least, will lead to the employment of sedatives. Bismuth is indicated locally, the coal tar and mydriatic anodynes by the mouth.

5. *Organic Production of CO_2 and Associated Gases.*—With all the favouring conditions present it is a wonder that the gastric bacteria and fungi do not invariably cause a notable production of the gases of putrefaction and fer-

mentation, especially as there is so often superadded a supply of germs from septic stumps and nasal cavities.

The lack of such gas production is ascribed to (*a*) the comparative shortness of gastric digestion, (*b*) the removal of fermentable and putrescible material by digestion and absorption, (*c*) the antiseptic action of hydrochloric acid.

Most authorities consider the last as relatively unimportant on account of the dilution of the acid: but it must be of considerable importance, as the other circumstances are merely negative. It must be remembered, moreover, that the standard of the bacteriologist is a lethal one, that of the physiologist and the therapeutist merely inhibition of the vegetable cell.

I take it, then, that gastric putrefaction may be assigned to two sets of causes, disturbance of intestinal peristalsis, including various forms of obstruction, and colonisation of bacteria in the stomach wall, including cancer and the various types of ulceration.

The treatment of the underlying condition, often involving surgical interference, is beyond the scope of this paper.

The milder measures which are usually ample in the treatment of fermentation cannot be relied upon to cleanse a stomach in which proteolytic bacteria are at work. Various antiseptics have been used, but I think a 4 per cent. solution of borax and sodium bicarb. will be found efficient.

While it is impossible to disinfect by the mouth a foul stomach full of chyme, it is perfectly possible to keep a jejune one relatively aseptic by administering salacetol, or some similar antiseptic, with moderate amounts of water. Hence the value of administering nutrient enemata and cutting off all nourishment by the mouth.

Again, gastric fermentation is often considered as amylaceous dyspepsia: starches are withheld as far as possible, and diastase is given to ensure their prompt digestion.

While it is true that "ptyalin" digests cooked starches

into maltose, and that small quantities of "invertin" are secreted by the stomach, to convert this maltose into glucose the amount of starch digestion that normally takes place in the stomach is insignificant.

When much gas is formed in the stomach from carbohydrates the reason is usually that there is a failure of normal antisepsis due to hypochlorhydria.

In estimating the "acidity" due to HCl. one may be deceived by testing the "filtrate" after a test-breakfast, as a weak stomach may react normally under the light burden of that meal, though it may not produce sufficient HCl. under normal diet; just as a weak spring may rise as high as a strong one under a small load.

While gas production from proteids requires mechanical cleansing of the stomach and physiologic rest, carbohydrate fermentation may be treated by antiseptics. Usually, there are also indications to increase the amount of HCl., both by its administration as such, by increasing the chlorides, by giving sodium chloride in excess at the meals, and stimulating the gastric glands by giving strychnin.

Charcoal, if given in large doses, is of some value in fixing gas, but it will not prevent gas formation.

6. When, through spasm of the cardia or pressure from without, gas, however produced, is not freely eructated, it must either pass through the pylorus or produce characteristic symptoms from distension of the stomach.

The cases in which gas is produced by a mingling of gastric and alkaline intestinal juices cannot lead to distension of the stomach alone, but spasm, kinking, or other obstruction below the pylorus may confine the gas of the stomach and part of the upper small intestine.

Most cases, however, seem to be due to organic formation of gas, and mainly to fermentation of carbohydrates.

Mild forms are best treated by the administration of hot carminative drinks, change of posture, &c., &c.

Such cases are very common: they are especially frequent at night, perhaps because some posture during sleep

favours pressure of the liver on the pylorus, duodenum, or upper coils of the jejunum; perhaps because lessened peristalsis allows an accumulation of solid and liquid intestinal contents, so that a trap is formed in the intestine.

Whether the closure above is entirely spastic—and one would scarcely consider sleep to favour the development of spasm or due to the pressure of the liver on the œsophagus, it is difficult to say; but there is no question that gastric distension is favoured by lying on the left side.

"Nightmare" is frequently due to this cause, and one can only decide by the state of the pulse and the heart sounds in any particular case whether the sense of cardiac interference is mainly genuine or due to the "nightmare."

Most of these cases are relieved spontaneously or by domestic treatment; and apart from the passage of the stomach-tube to relieve gas-pressure, the treatment is prophylactic, to prevent the formation of gas, a subject which has been dealt with in the course of this paper.

Having passed, in somewhat sketchy review, the various theories of gas formation in the stomach, I would, in conclusion, enter a strong plea for the more careful investigation of these cases, so often recurring in general practice, and instead of routine mixtures for "wind" so often prescribed I would substitute a minute and searching inquiry into primary causes—their removal resulting in credit to ourselves and service to our patients.

FRENCH HONOUR FOR A CARLSBAD PHYSICIAN.

It is announced that Dr. F. Schuman-Leclercq, M.D., "Koerner," Carlsbad, Austria, has been made a Chevalier of the French Légion d'Honneur.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A System of Syphilis. In Six Volumes. Edited by D'Arcy Power, M.B. Oxon., F.R.C.S.; and J. Keogh Murphy, M.D., M.C. Cantab., F.R.C.S. With an Introduction by Jonathan Hutchinson, F.R.S. London: Henry Frowde, Oxford University Press: Hodder & Stoughton. Vol. II. Royal 8vo. 35 Illustrations. Pp. 387. 1908.

In our review of the first volume of "A System of Syphilis," edited by D'Arcy Power, M.B. Oxon., F.R.C.S., and J. Keogh Murphy, M.D., M.C. Cantab., F.R.C.S., we expressed our confidence in the continuance of the same standard of excellence which characterised the first. Very distinguished is the list of names subscribed to the several monographs contained in the first volume—viz., Jonathan Hutchinson, Iwan Black, Elie Metchnikoff, Andrewes, Lambkin, Shillitoe, and Still. Each of these authors writes not alone on syphilis, but on that particular branch of the subject with which he is singularly qualified to deal. The produced work of such a combination of experts would suggest finality in excellence, so far as intellectual effort could contribute. Recognising these facts, our readers may have regarded the optimistic terms in which we referred to the succeeding volumes with some misgivings. There can at least be no possible question as to the merits of the second volume, which amply justify our faith. The general practitioner will undoubtedly value it more highly as being essentially practical, instructive, and proportionately useful to him, whereas the first volume will be found more interesting to the specialist on account of its historical, scientific, and suggestive qualities. Neither volume can be dispensed with by the syphilologist. Both should be found in the libraries of all those who, in their professional duties are

brought much into contact with patients suffering from this ubiquitous disease.

The second volume consists of 387 pages, allocated as follows:—250 on the "Surgery of Syphilis," by D'Arcy Power; 100 pages divided into two portions, one of 83, on "The Treatment of Syphilis," and 17 being devoted to a description of the "Ravages of Syphilis on a Virgin Soil," by Colonel Lambkin. Finally, Dr. W. J. Gow discusses the subject, "Syphilis in Obstetrics," in the remaining 19 pages. There are 36 plates, 15 of which are coloured, and most of these prepared from direct coloured photographs, a new and beautiful process by means of which a picture of the object is vividly reproduced. These 35 plates are exclusively used for the purpose of illustrating D'Arcy Power's paper.

"The Surgery of Syphilis" is from the pen of D'Arcy Power, who writes lucidly, and includes in his text just a sufficient number of the histories of appropriate cases, which, with the coloured illustrations, make a most efficient substitute for actual clinical or bedside demonstrations. He describes a new process of estimating the presence and quantity of mercury in the urine of patients undergoing specific treatment, and claims for this method that any practitioner may use it without the possession of special analytical knowledge or elaborate scientific instruments. Whilst believing this to be the case, we doubt if, for ordinary purposes, it will be found more useful, or anything like as simple, as the method adopted by the Army Medical Corps. The process suggested by him, however, is so sensitive that as little as 0.001 gramme of Hg. per litre of urine is shown.

Dr. D'Arcy Power states that he has found mercury administered in the form of suppositories act advantageously in certain cases. He quotes from Bryant's "Surgery," dated 1884, wherein this form of treatment was recommended. Here we may remind our readers, though perhaps somewhat irrelevant to the subject, that Darwin, in his work entitled "Zoonomia," published in 1803, advised clysters of mercury in cathartic and other ailments. When discussing the possible prophylactic

effects of mercury he states that mercury in the system of an individual does not render him immune to the disease, and points out that men "*having gone through* a course of mercurial treatment" have contracted the disease. This is certainly a most telling argument as it stands. Also, that workers in mercurial mines are by no means exempt from it. Finally, Professor Neisser has shown that a chancre obtained by experimental inoculation develops in the same manner in a body "which *has been already brought* under the influence of mercury" as in an animal to which mercury has not been given. If "*injections*" of mercury are begun on the day syphilis has been inoculated experimentally, a hard sore develops at the spot after the usual period of incubation, and the disease becomes generalised in exactly the same manner as in an animal which has not been treated with mercury.

In our opinion the inference deducted from these reports would be unduly pessimistic, and, on the other hand, it should be remembered that Lambkin has noticed that in cases where the *Spirochaete pallida* had been early detected previous to the administration of mercury, it becomes difficult to find this organism on the second day after an intramuscular injection of mercury, and that it is impossible to demonstrate it within two days after a second injection. He furthermore states that even the local application of black wash to a chancre rendered its detection very difficult.

Metchnikoff and Roux, as is now universally known, found that chimpanzees and monkeys inoculated with syphilis did not develop the disease if a properly prepared calomel ointment was *rubbed* in, whereas "control monkeys," in which no preventive means were taken, did. D'Arcy Power refers to their experiment on Dr. Maisonneuve, and says—"It shows, so far as a single experiment is concerned, that syphilitic virus which was inoculated and allowed to remain in consort with the tissues for a definite time did not affect the body generally in one case, whilst in others it was successfully inoculated. In the unsuccessful case the seat of inoculation was *rubbed* with an ointment containing mercury: in the other cases no such

precaution was taken." These statements are strikingly antagonistic, and the former, including those of Professor Neisser, are at variance with what we would expect from our knowledge of the specific effect mercury has on syphilis. We know that it cures syphilis, and assume that it does so by its attenuating and destructive action on the virus itself, or by rendering the tissues unsuitable for its development, each of these causes being complementary to the other. If this assumption be correct the mercurialised individual should be less liable to contract the disease, and in the event of his doing so there should not be so great a probability of his infecting others. Men working in mercurial mines may have their health so injured by their environment that the prophylactic qualities any mercury in their system might be expected to have is in reality more than neutralised owing to its prolonged and destructive effect on the blood and natural resisting powers of the individual. Mercury absorbed accidentally thus must differ in its protective properties from those produced by its scientific administration in the form of a prescription.

No doubt these divergent views held by scientists are due to the results they have met with in their laboratories—results of experiments undertaken with a common object in view, but, unfortunately, in many cases varying in technique. Were this latter not the case we could not have such contradictory reports. We know that for a long time Neisser failed to produce syphilis in monkeys when others found little difficulty in doing so. This failure on his part led him to deny the possibility of injecting lower apes with syphilis, and was evidently due to the particular technique he adopted; for, whereas he, at that time, made superficial abrasions for the inoculation of the virus, it is now an established fact that to communicate the disease by inoculation of syphilitic pus, the pus must go through the epidermis and come in contact with the derma. Neisser himself explains his inability to corroborate Metchnikoff's claims as to the adequacy of calomel inunctions as a means to preventing syphilis (the inoculation being accurately performed) by stating that

"perhaps M. Metchnikoff's inoculations were much more superficial than mine." This quotation we give as supporting our statement that the antagonistic reports of scientific investigators are in consequence of some difference in their technique, and we accordingly look forward to a satisfactory solution of the problem of mercurial or other prophylactic measures for syphilis.

It seems to us, from a consideration of the foregoing statements as to the inefficiency of mercury in the system, or when hypodermically injected as in Neisser's experiments for the prevention of syphilis, that the success following Metchnikoff's and Roux's method of calomel inunctions may be due to the reaction set up in the tissues by the twenty minutes' *rubbing* prescribed by them. The vital changes thus set up would be somewhat analogous to Bier's treatment.

One of our colleagues some six months ago had the misfortune to stab the distal phalanx of his left thumb with a needle contaminated with the blood of a patient receiving intra-muscular injections for complete syphilis. He used a calomel inunction and took grey powder for six weeks. Though he was naturally anxious at the time, no ill consequences followed the accident.

Colonel Lambkin gives an excellent description of the various methods adopted in the treatment of syphilis, and, as would be expected in his writings, he places intra-muscular injections in the premier place as the routine procedure to be practised. His strongest argument in its favour is, in our opinion, the lamentable irresponsibility many of our patients display when entrusted with their own medicine. We are not satisfied, however, that the regularity obtained in the treatment of disciplined troops by this method is sufficient proof that by its general adoption we would experience the same punctuality amongst the independent public.

We most cordially recommend Colonel Lambkin's masterful treatise on the treatment of syphilis, as contained in the volume before us, to all those who require to consult an authoritative work on the subject. The description he gives of "An Outbreak of Syphilis in a

Virgin Soil" and of the means he suggests for its eradication is interesting, and the latter, slightly modified, might advantageously be applied at home. It seems that after Stanley's return from Central Africa, in 1872, he gave a favourable report of Uganda, and expressed a desire that missionaries should be sent there. Two years later his request was acceded to, with the result that the king and some twenty chiefs became Christians, and emancipated their women from the seclusion of the harem. The virulent invasion of syphilis in Uganda originated (according to Colonel Lambkin) *twelve years ago*—its ravages being so great that in some districts 90 per cent. of the population were afflicted. He attributes this outbreak to two causes—first, the introduction of Christianity, and, second, the cessation of punishment for immoral offences. Whilst disclaiming all pretensions to any ultra prudishness, we cannot concur with, at least, the first of these statements as to the ætiological factor in the production of the outbreak of syphilis in Uganda. The customs of the inhabitants of that country are such as would necessarily spread any contagious disease once placed on any footing amongst them. For instance, the "Cow tribe," who are a nomadic people, consider it a point of hospitality that a guest should share the nuptial couch of his entertainers, the host relinquishing his spouse to the visitor in the morning. There is also a custom which allows "a woman once married to throw all sexual restrictions to the winds and welcome to her bed any of her husband's friends or relatives with impunity." We imagine that these customs must be natural to the people, and to have existed prior to the introduction of Christianity. In fact, although the majority of the people have syphilis, only one-tenth of the population are Christians—a figure having a curious relation to the amount of syphilis present. In looking for a possible explanation of the case we remember that in 1895 (rather earlier, we admit, than the twelve years mentioned by Colonel Lambkin as the date at which the outbreak of syphilis occurred) H. M. Government decided to proceed with the construction of the railway connect-

ing Uganda with Mombosa, an undertaking which, it is fair to assume, would require to some extent the employment of foreign labour, and was constructed to meet the requirements of developing trade. Later on, in 1897—a date practically coinciding with the period of which Colonel Lambkin tells us syphilis commenced in its virulent form in Uganda. In this year a serious mutiny broke out amongst the Soudanese troops in the Protectorate, which was only suppressed after several months' fighting, during which several British officers lost their lives. We hasten to grant that this may be the merest coincidence only. Yet in Europe we know that after the French troops had been in Italy the disease was supposed to have originated there, and as everyone knows they called their disorder the Neapolitan disease, whereas the Italians termed it the Gallic disease. When the Uganda people read the history connected with their country will they follow the precedent of the Italians, and associate the foreign troops with the origin of the disease?

The *Spirochaeta pallida* require for their transit corporal and not spiritual factors. We regard the ravages of syphilis in Uganda as being mainly due to the tribal customs referred to, and though syphilis has been known in tropical Africa since the early part of the nineteenth century, we consider its origin in Uganda may be associated with the opening up of the country by rail and trade, culminating in the effects produced by the war necessary to subdue the mutiny of the Soudanese troops twelve years ago.

Dr. Gow's article on "Syphilis in Obstetrics" consists of 19 pages of current knowledge of the effects of syphilis on the ovum, &c. He does not state any personal or definite opinion beyond suggesting that in the event of a man marrying after two years' mercurial treatment for syphilis, and his wife becoming pregnant, "it is not permissible to advise" that she be placed on mercurial treatment. He bases this opinion on "the light of our present knowledge with regard to paternal infection and conceptional syphilis." If it was not for this

expression we should have found it difficult to be confident of what his views were as to the possibility of paternal infection. We infer that it is owing to the disproportion in size of the spirochaete and the spermatazoon, together with the experimental fact that syphilis has hitherto been incapable of being inoculated by the semen as a medium, that Dr. Gow doubts the possibility of such infection.

Dr. Power leaves no doubt on his readers' minds as to what his views are. On page 173 of the same volume he states in reference to the semen that "it may be inoculated with impunity, although it has the power of transmitting syphilis to the ovum fertilised by it. But impregnation differs widely from inoculation." From time to time cases have been reported which have been termed exceptions to Colles' Law (*vide* "The Annual of the Universal Medical Sciences," 1901). One indisputable example of this kind would suffice to prove paternal infection. If, in the case of a child with syphilis and a mother with no signs of the disease, the latter develops a sore upon her nipple, whether a disputable chancre or not, even though indurated, and that mother in due and regular course of time develops the familiar signs and symptoms of the disease, we would regard it as strong presumptive evidence that the sore on her nipple was the primary seat of the infection. Hutchinson and Fournier both believe that the father can infect the ovum.

"Syphilis in Obstetrics" contains no allusion whatever to parturition, or to the management of those cases where foul and obvious syphilis is abundant.

Though unable to resist the temptation to criticise the more abstract views contained in the volume, we can assure our readers that its teaching as to all the essential principles of the subject is orthodox, sound, and full of instruction. S. S.

New and Non-official Remedies. Chicago: Press of the American Medical Association. Pp. 167. 1909.

This is the first regular edition of the Annual New and Non-official Remedies, and it contains a list of the reme-

dial preparations approved by the Council on Pharmacy and Chemistry of the American Medical Association prior to January, 1909. Instead of adhering strictly to an alphabetic arrangement a classification has been adopted which permits an easy comparison of remedies of similar origin and properties. Mixtures are to be found in the appendix, and a number of non-proprietary preparations have been added which, for various reasons, have not been admitted to the Pharmacopœia. The descriptions in the appendix have been made as brief as possible, and the articles are classified under the names of the manufacturers. Therapeutic indications are not given, as it is assumed that the physician is able to apply his knowledge of the pharmacological properties of the ingredients without aids from either the Council or the manufacturer. The non-proprietary remedies admitted to the body of the book are described as accurately and carefully as a painstaking search of the literature would permit.

The descriptions of processes of preparations, chemical and physical, and of the physiological action, contain much information which cannot fail to be of immense value both to physicians and to pharmacists.

Over 200 different remedies are described in this presentation of the newer Materia Medica.

A *Text-book of Operative Surgery*. Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Designed for Practitioners and Students. By Warren Stone Bickham, M.D., Phar. M.; Junior Surgeon to Manhattan State Hospital, New York, &c. Third Edition, greatly enlarged; containing 854 illustrations. Philadelphia and London: W. B. Saunders Company. 1908.

The new edition of this now well-known work has been enlarged by over 200 pages of text and over 300 illustrations. The increase is most noticeable in the description of operations on the spine, this section having been enlarged from 17 to 58 pages; also in the account of operations on the thorax, abdomen, and pelvis. It is now one of

the most complete and up-to-date one-volume text-book on the subject. The consideration of each operation consists in a concise description of the results aimed at and in directions regarding the position of the patient, followed by the surgical anatomy of the parts and the external landmarks; the details of the method are then fully given from the incision to the passing of the sutures. The illustrations, some of which are in colours, are particularly good, and greatly assist the reader in following the description of the various steps of the operation. There is an excellent general index, in which most of the better known operations have been entered, both under their own names and also under the names of the surgeons who have introduced them. It is a book which should prove of great service not only to students who are working for the higher examinations, but also for practitioners who wish to refresh their memory on, or study the details of, any operation.

The Medical Annual. A Yearbook of Treatment. 1909. Bristol: John Wright & Sons. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 8vo. Pp. 911.

"THE MEDICAL ANNUAL" has long since established its place as one of the best, probably the best, yearly compilation of advances in the various branches of medical science printed in the English language. This is the twenty-seventh year of its publication, and it well maintains its high reputation for completeness and utility. An up-to-date practitioner can hardly afford to be without it, forming, as it does, a ready reference book of all the most modern methods of treatment and thoughts concerning disease. As is only too often the case, the writer of the therapeutic section at the beginning of the book is compelled to acknowledge his inability to chronicle any great advance in therapeutic knowledge. He is nevertheless able to fill about sixty pages with the records of therapeutic attempts with new remedies, and of pleas for the resuscitation of well-known but almost disused drugs. Eustace Smith's paper on the use of antimony is perhaps the most interesting paragraph in this section. The newer remedies for

syphilis, the use of serum, vaccines, and of the curdled milk advocated by Metchnikoff also receive notice. A short section on radio-therapeutics generally contains a summary of the year's advance in this department. It is followed by Part II. of the volume, which contains, arranged in alphabetical order, according to the subjects dealt with a review of medical and surgical progress during 1908. This part is illustrated, where necessary, by plates and by figures included in the text. The work seems to be in every way well done and reliable, but the nature of it plainly obviates any lengthy notice. It is dull reading as a text-book but of the greatest value as a work of reference, which it is intended to be. The usual sections on sanitary science, medico-legal decisions, and an illustrated list of new medical and surgical appliances complete the work. The editors and publishers are to be congratulated on the success which they have attained, and which the care and energy so plainly bestowed upon the work so well deserves.

Infant Feeding. A Practical Guide to the Artificial Feeding of Infants. By J. S. Fowler, M.D., F.R.C.P., Ed.; Physician to the Royal Hospital for Sick Children, Edinburgh. London: Henry Frowde; Hodder & Stoughton. 1909. Cr. 8vo. Pp. x + 230.

This is a readable little volume of just over two hundred pages, and forms one of the familiar Oxford Medical Manuals. The book is based on a series of lectures delivered by the author to a post-graduate class at the University of Edinburgh, and it is in every way practical. The author realises that the human body is not a test tube, and, in consequence, he places very little stress on the accurate prescribing of milk in the form of chemical formulæ. He relies instead on certain general and easily remembered principles, and points out how by a reliance on these almost every possible modification of milk can be readily ordered. One of his objects is to enable a practitioner who has not had the advantage of studying in a Children's Hospital to adopt in his every day practice the most approved methods of preparing and administering a proper dietary for both healthy and diseased infants, and in this task he has certainly succeeded. The book is far from exhaustive in its nature, and this we regard as one of its merits. Instead

of stating elaborately what one may do, or recording what someone else has done, the writer gives a readable account of his own methods, and thereby enables the reader to obtain a consistent view of the whole subject. But little space is given to patent foods. The author is an apostle of the all importance of milk. He, at the same time, clearly points out the circumstances under which milk should be temporarily dispensed with, and recommends those substitutes which he has himself found of value.

Lectures on the Pathology of Cancer. By CHARLES POWELL WHITE, M.A., M.D., F.R.C.S. Manchester: At the University Press. 1908. Sherratt & Hughes. 8vo. Pp. 83.

No. X. of the Medical Series of the publications of the University of Manchester consists of the "Lectures on the Pathology of Cancer" delivered by Dr. Powell White in connection with the Pilkington Cancer Research Fund. A comparatively short course of lectures, covering such a wide field, cannot, of course, be expected to go into all details, and accordingly many points of interest have been omitted or only touched in a superficial manner. The book does not profess to contain the whole pathology of cancer. The idea has been rather to give a general outline dealing with certain usually neglected points, and hence to lay particular stress on the life history of tumours and on certain biological problems connected therewith. In four parts the author treats of tumours in general, of cancer, of its causation and of the bearing of pathology on treatment, and an appendix discusses and condemns the parasitic theory. As the pathology of cancer, which term includes all malignant tumours, cannot be considered apart from that of other tumours, the volume begins with a classification of all new growths. This classification is a slight modification of that brought forward by the author in the Erasmus Wilson Lectures in 1902. In it tumours are arranged according to their histological structure and their relation to normal tissues, and not according to their known, or supposed, embryological origin—a classification described as based on fact and not on theory. Following this there is a discussion of the rudiment of origin, the modes of growth and extension, and the ultimate destination of cancers, the degenerative processes which take

place in them, and their clinical features. In connection with this last head it is pointed out that cancers *per se* have no effect on the organism in general; there seems to be no specific cancer toxin, and moreover the accompanying cachexia must be held to be due to the drain of nutrient material, combined with the absorption of the products of disintegration of the tumour cells, and of the products of bacterial growth when ulceration is present. Interesting original work is mentioned on the presence of cholesterin and fatty crystals in cancers as well as in normal adrenals, and the author suggests that cholesterin takes an important part in the regulation of cell proliferation. Naturally we turn with most interest to the chapter on causation. Although it is well worth reading on account of the able way in which extrinsic and intrinsic causal factors are discussed, as well as the effects of inflammatory conditions, heredity, age, sex and other influences, the conclusion that a tumour arises from an alteration of the equilibrium existing between the proliferative forces within the cell and the antagonistic influences of the neighbouring cells and tissues really takes us very little further than the spot from which we started. The statement that the physiological tissue equilibrium, normally stable, becomes in subjects of cancer unstable, so that small causes produce the most profound and far-reaching effects, may clear our ideas as to the origin of cancer, but after all explains nothing.

The volume is well illustrated with photomicrographs and some statistical charts, and will be very useful to those who wish to be up-to-date in the study of cancer.

A Manual of Clinical Diagnosis. By James Campbell Todd, M.D.; Associate Professor of Pathology, Denver College of Medicine. Philadelphia and London: W. B. Saunders Co. 1908. Cr. 8vo. Pp. 319.

This is an extremely nice little book. It is well and copiously illustrated, many of the figures being executed in colours. We fully agree with the statement of the author that more can be taught by a good picture than by pages of print. The student who is familiar with the microscopic appearances depicted in these pages will

seldom find himself at fault in making a diagnosis in a clinical laboratory. The text also is good. It is concise, dogmatic, and clear. No attempt at completeness is made. The writer desires the volume to assist the every-day man, and not to form a reference book for a laboratory worker. Simplicity and practicability are consequently his key-note. Chapters are devoted to the examination of the sputum, the urine, the blood, the gastric contents, the fæces, and animal parasites. A chapter is also devoted to miscellaneous examinations, including the examination of pus, cerebro-spinal fluid, and various exudates. A short addendum on apparatus and re-agents is included at the end of the book.

Aids to Obstetrics. By SAMUEL NALL, M.B. Cantab.: M.R.C.P. Revised by C. J. NEPEAN LONGRIDGE, M.D. Vict., F.R.C.S. Seventh Edition. London: Baillière, Tindall & Cox. 1909. Fscp. 8vo. Pp. viii + 193.

THIS little book has been so well and favourably known to many generations of students that it seems almost unnecessary to comment on it. It has, however, been thoroughly revised and brought up to date by Dr. Nepean Longridge, the author considering that he himself could not do justice to a revision.

There are some sections of the book which might with advantage have been treated with more method. For instance, the changes in the breasts during pregnancy are not described in any order. Again, "at the first month the fœtus measures," &c., is vague, the insertion of the words "end of" would make the meaning clear, likewise in the description of the fœtus in the following months. The same applies to the explanation of a "viable fœtus," "a fœtus expelled before the seventh month." Notwithstanding the fact that the book is not intended to be more than an "aid," the hæmorrhages—"accidental" and "unavoidable"—are passed over too lightly. Examination by palpation, we are told, "should be carried out in a methodical manner," but in the description of this difficult and very important piece of technique we can find no method. The usual order of "grips" is reversed, and when we read "run the hands over the front and sides of

the uterus, if it feels smooth the back is towards the front; if many knobs are to be felt the back is probably posterior." We are not led to believe that this method of examination is considered as important as it should be. Obliquity of the uterus as a factor in the production of face presentation is omitted, though probably the most common cause. Despite these criticisms, and they are for the most part of a minor type, the book remains an excellent *précis* of obstetrics, and will doubtless command, as of old, the warm support of students.

"*Chavasse's advice to a Wife.*" Revised by G. Drummond Robinson, M.D., B.S., F.R.C.P. Fifteenth Edition. 1909. London: J. & A. Churchill. 1909. Pp. 360.

"Chavasse" has been a household word for so long that it requires no introduction to the majority of married women. The fact that this book has reached its fifteenth edition is sufficient evidence of the esteem in which it is held. The present edition has been revised thoroughly by Dr. Drummond Robinson.

On first reading the book through, the constant repetition of advice and statements is apt to annoy, but, as the reviser points out in his preface, he has not altered this, as it is a fault in the right direction. While full of excellent advice we cannot find ourselves in agreement with some statements. "Meddlesome midwifery" is deprecated, and labour defined as a "natural process." Why, therefore, in managing the third stage of labour are we told to knead the uterus until the expulsion of the placenta? Surely if that organ has been capable of expelling the child unaided it should be able to expel the placenta after it has rested and become adapted to the smaller volume of its contents.

Again, when the placenta is being removed we are told to twist the membranes; this manœuvre is unscientific, as it necessarily produces an uneven tension on the membranes, and tends if anything to cause tearing of them and retention. It is doubtful if castor oil is the *best* purge to administer during the puerperium, as it tends to constipation after its action.

The book is clearly written, and to the young wife should prove of value in many ways, and promote a thoroughly sane outlook upon pregnancy, childbirth and the lying-in period.

The Medical Inspection of School Children. A Series of Lectures delivered at the West London Post-Graduate College. London : "The Medical Officer."

THESE lectures deal with "The General Scheme of Inspection," Dr. Saunders ; "Examination of Skin Diseases," Dr. Abraham ; "Examination of the Eyes," Dr. Scott ; "Examination of the Ear, Nose and Throat," Dr. Davis ; "Examination of the Teeth," Dr. Williams. They show how much the Board of Education in England is in advance of the corresponding body in Ireland. The sanitation, heating and lighting of the Irish schools are still (as shown by the reports of the inspectors), too often inadequate, and the systematic medical inspection of the pupils is unheard of. Dr. Saunders gives a clear account of the English scheme, and how it should be carried out, his description of how the examination of the children should be carried out being clear and useful. Dr. Abraham's lecture on skin diseases is another excellent piece of work, and his remarks on the diagnosis and treatment of ringworm may be accepted as *ex cathedrâ*.

Indeed all the lectures are of their kind excellent, the temptation to exhibit rare cases has been resisted, and the whole course may be described as practical and helpful, and the handbook as well worth preserving for reference.

LITERARY NOTE.

MESSRS. JOHN BALE, SONS & DANIELSSON, LTD., are publishing a translation of the second edition of Bandelier's and Roepke's "Lehrbuch der specifischen Diagnostik und Therapie der Tuberkulose" under the title of "Tuberculin in Diagnosis and Treatment." The first section (80 pp.) deals with the subcutaneous tuberculin test and the local tests associated with the names of Calmette and v. Pirquet, discussing their significance in diagnosis. The second section (75 pp.) describes the treatment of pulmonary tuberculosis with tuberculin, giving the exact mode of employment of the different preparations. The third section (12 pp.) summarises the tuberculin treatment of other organs. A coloured plate of the local tests is given, and there are eighteen charts illustrating the tuberculin reaction and the course of tuberculin treatment.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny. M.D., F.R.C.P.I.
General Secretary—James Craig. M.D., F.R.C.P.I.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—T. H. Milroy, M.D.
Sectional Secretary—E. P. M'Loughlin, M.B.

Friday, January 22, 1909.

The President in the Chair.

The President, having thanked the Section for the honour conferred upon him in his election to the Presidency, said he wished to put before the members the result of some work which he had done on reaction time, and which he had undertaken in order to study the nature of mental fatigue.

Reaction Time: Fatigue during Reaction Time Experiments.

By reaction time is meant the period which elapses between the initiation of a sensory stimulus and a volitional motor response on the part of the stimulated individual. Thus one might estimate this time for hearing, sight, or touch, taking the same type of motor response as indicator in each case. When a series of reaction times are taken for any of the above-mentioned senses, one observes that there are naturally distinct variations in the intervals between the sensory stimuli and the motor responses; but one may also observe that in all cases, after a prolonged series has been taken, fatigue gradually sets in, as shown by a lengthening of the reaction time. This fatigue

might affect the sensory paths, the sensory centres, the intermediate central paths between these centres and the voluntary motor centres, or the motor path as far as the muscles themselves. The experiments were carried out in order to arrive at some knowledge as to the most probable seat of the fatigue. In all cases a preliminary series of reaction time experiments was taken in order to obtain an average normal result. Then, following such a series, various devices were employed in order to fatigue, if possible, mainly the sensory, then in another series mainly the intermediate central paths, and, in still another, the motor paths. The following may be taken as an example of the procedure adopted in connection with the analysis of the fatigue produced during reaction time for hearing experiments. At first the average normal reaction time for hearing was obtained. Then the person was asked to follow carefully the ticks of a metronome beating regularly, and to keep count of the beats. This could be done without straining attention beyond a very slight extent. After varying periods of this metronome counting the reaction time for hearing was again taken. It was found that there was practically no lengthening of the reaction time, even after the person had listened to the metronome for one hour. In another series of experiments the person was asked to count the irregular ticks produced by toothed wheels acting on one another, the speed at which those were driven being varied. After varying periods of this form of sound production, the reaction time for hearing was again taken. It was found that, even after shorter periods than in the case of the metronome, slight fatigue was produced as shown by the lengthening of the reaction time. In still another series the reaction time for hearing experiments itself was used throughout to produce the fatigue, and it was found that the lengthening of the reaction time took place much more rapidly than was the case in the immediately preceding series. The principal difference in the nature of the three series was the degree of attention which was required to be directed towards the act. This was least in the first series and greatest in the last. It was then deemed advisable to study the effects of interpolating between two series of reaction times for hearing, a series of similar ones for sight, or between two series of sight reactions, one for hearing. In practically all cases a change of this character did not prevent or even delay the usual onset of fatigue. In fact if there was more variation

than the above-mentioned in the reaction times series—as, for example, hearing, sight, hearing, sight—the lengthening in the last series of reaction times for sight was greater than it would probably have been had reaction times for sight been taken throughout the whole experiment. In these experiments the sensory paths were varied, the central was in part varied, while the motor path remained the same. Although the central path was varied in so far as a transmission had to take place from a different sensory centre to the same motor one, there was one central system common to all—namely, that concerned in directing attention to the translation from the sense perception to the volitional act. Therefore, as the sensory channels have been changed, and the path from sensory centre to voluntary motor centre also varied, if these changes mean rest to the unemployed paths, then fatigue must have affected either the higher neuron systems concerned in the maintenance of what we term "attention," or the neurons concerned in the transmission of the motor impulses. That it is not the latter is shown by the results of certain experiments which were carried out with the view of fatiguing, if possible, the motor path without affecting to any marked extent the higher centres concerned in the maintenance of attention. This was done by asking the person to carry out similar motor acts to those employed in the ordinary reaction time experiments. No sign of fatigue was to be observed, as judged by the average duration of reaction time, before and after such a period of motor activity. An example of the degrees of fatigue produced by changing from one form of reaction time to another (the motor response in each case being the same) may be given—(1) Normal reaction time for sight, .206 second (average over twenty-five minutes; experiment 250 observations). (2) Subsequent reaction time for hearing, .225 second taken for ten minutes (the normal for hearing being below .200 second). (3) Continuation of (2) for another ten minutes, reaction time (hearing) .267 second. (4) Reaction time for sight taken in conclusion for a period of ten minutes, .271 second. This degree of fatigue from .206 second to .271 second is probably not less than would have occurred had reaction times for sight been taken throughout the whole experiment. From a careful study of a large number of experiments on the reaction time, it appears as if in all cases the fatigue has its seat in the higher centres concerned in the direction of the attention

towards the sensory motor reaction. These higher centres appear to be required in order to link the various synapses of the higher psychical and volitional motor centres more closely together, and thus facilitate the transmission of the nervous impulses. Thus, in their fatigue there is a delay in transmission probably due to the higher resistance at the synapses, which are not so closely linked together as when the attention is freshly directed towards the act at the outset of the experiment.

Professor Dixon expressed the thanks of the Section to the President for throwing so clear a light on the action between neurons; his method of tackling the problem was undoubtedly the right one.

Professor Fraser said there was a great difference between the effect of a bell sounding for dinner and a burglar alarm at night, although the path was the same.

Dr. Dawson said that if the President's theory was correct it would appear that the site of the will, so far as it had a local habitation, must be somewhat higher than the faculty of attention.

Dr. Walter Smith said that the fundamental value of the communication appeared to be its introduction of quantitative measurements into the estimation of psychological and sensual processes. In judging of reaction time, an important factor was the duration of the stimulus. There was a great difference between the momentary impact of a visual stimulus and the relatively long duration of even the shortest sound. The subject was valuable to physicians and surgeons in estimating the phenomenon of knee-jerk, or the many manifestations of disordered and delayed sensations in hysteria. A most important point was the fatigue in the synapses between neurons. It was possible to draw an analogy between mental and digestive processes: in the nervous system they might recognise the possibility of a stimulus of stimuli just as there was in the digestive system a ferment of ferments.

Dr. Mourhead said he strongly believed that after a short rest following work one could turn to a new variety of work that required just as much attention, whereas if one turned to the same kind of work the same power of attention would not be appreciated.

The President, in reply, said the nature of impressions varied according to the stimulus. One's idea of certain sounds was based on past sensations and memories which called forth

a different mental condition. There were certainly two paths between neural centres, one voluntary, the other formed by habit, but they could not say whether the linkage was always made by the one path, nor could they recognise where volition came in. His tests were for the purpose of finding where fatigue occurred, not to find what alterations in duration of stimuli produced—that had been carefully worked out by others. It was difficult to tell how change gave rest. Sight plus hearing would produce greater fatigue than one form of fatigue carried the whole way down.

Notes on the Sterno-clavicular Joint.

Dr. H. M. Johnston made a communication on the above joint, and exhibited drawings in illustration of the interesting points brought forward regarding the anatomy of the articulation and the movements of the clavicle. The security of the joint was shown to depend mainly upon the costo-clavicular ligament, which is always tense, even when the upper extremity is hanging by the side. Owing to the attachment of this ligament to the clavicle being on the postero-inferior aspect, elevation of the clavicle is permitted by a movement of rotation taking place, during which the anterior surface of the bone becomes directed somewhat upwards. The interarticular meniscus, intervening between the inner end of the clavicle and the sternum and first costal cartilage, and against which, owing to the laxity of the capsular ligament, the articular surface of the clavicle can move (upwards and downwards, forwards and backwards) serves rather as a "buffer," preventing shocks and jars being transmitted to the sternum, than as a ligament. To the sternum and costal cartilage (this meniscus intervening) the inner end of the clavicle seems to be, as a general rule, firmly applied. During pulling, and when supporting the weight of the body by hanging from the hands, the clavicle is drawn somewhat outwards. This does not occur during reaching movements, as the contraction of the subclavius muscle prevents the clavicle being drawn away from the sternum as the scapula moves outwards and forwards. This fact can be readily demonstrated in the living subject.

Professor Dixon stated that he had seen the dissections of the joint made by Dr. Johnston, and was convinced that the explanations given of the function of the costo-clavicular ligament and of the subclavius muscle were the correct ones.

Professor Fraser, Dr. Moorhead and the Secretary expressed their appreciation of the work done, and of the interesting nature of the conclusions submitted by Dr. Johnston.

In replying, Dr. Johnston called attention to the fact that the nerve-supply of the subclavius muscle was from the same source (5 and 6 C.) as the upper part of the serratus magnus, which muscle was so intimately associated with the reaching forward movements.

Dorsal Subclavian Artery.

Professor M'Loughlin exhibited a specimen of the above. There were three branches from the arch of the aorta. The first branch was a stout trunk, 6 mm. long and 22 mm. wide, which gave off the two common carotid arteries; the second branch, which lay against the first, was the left subclavian, and the third branch, 12 mm. behind the second, was the irregular right subclavian. This artery was 10 cm. in length, and ran its usual course behind the œsophagus and trachea, and in front of the thoracic duct, crossing from left to right the bodies of the third and second dorsal vertebræ to reach the neck. Its branches were normal—if we except the origin of the internal mammary artery from the thyroid axis. The branch of the superior intercostal artery to the second space was shown to be joined by the usual small branch from the first aortic intercostal. The presence of this little branch in association with a dorsal subclavian artery should dispose of its claim to be regarded in normal bodies as a representative of the right dorsal aorta behind the fourth arch. The thoracic duct passed into the neck, not on the right side, as is usual in such cases, but on the left side, where it opened into the left vertebral vein.

Duodenal Diverticulum.

Professor M'Loughlin next exhibited a specimen of duodenal diverticulum. The opening was oval (16 mm. × 13 mm.), and was situated between the bile papilla and the caruncula minor, the centre of the opening being 10 mm. above and to the left of the former, and 12.5 mm. below and to the right of the latter. The hood-like valvula connivens above the bile papilla passed down the right wall of the diverticulum. The upper boundary of the opening was sharply defined by a curving valvula connivens, the sac passing up underneath this overhanging edge. The lower and left walls of the sac sloped gradually on to the somewhat smooth mucous membrane of the duodenum below.

The depth of the diverticulum was 18 mm. On being dissected from the back, the diverticulum was found to be embedded in the head of the pancreas and supported behind in its right half by the bile duct. The duct of Wirsung coming down through the head of the pancreas swept to the right round the lower part of the diverticulum, and there joined the bile duct about 12 mm. from the opening on the bile papilla. The duct of Santorini passed up from the lower part of the head in front of the duct of Wirsung, with which it communicated by a large branch, and then curved round the left side of sac, rising as it passed forwards to open into the duodenum above and to the left of the diverticular opening. An artery from the gastro-duodenal artery dropped down to the wall of the sac and was distributed in several branches. In commenting on the absence of any satisfactory explanation of these diverticula, which are usually found in the situation described, the exhibitor suggested that in these diverticula we possibly had evidence of an effort of the duodenum to produce a gland—perhaps part of the pancreas, perhaps a gland that was neither pancreas nor liver. The ventral pancreas is now known to arise in two buds from the base of the liver diverticulum—one of these (the left according to Helly) usually disappearing early. The tendency to early disappearance of this bud is suggestive of a primitive type of gland; the disappearance of its connection with the other bud may mean only a partial atrophy, and the presence of ductless elements—the cell-islands of Langerhans—may be the result of the early obliteration of the proximal part of the bud with the persistence of the distal portions in the cell-islands. It is possible that such a diverticulum as the one described may be an occasionally persisting proximal *cul-de-sac* along the line of growth of the ductless cell-islands of the pancreas, to which it would then stand in the same relation as the foramen cæcum of the tongue to the central portion of the thyroid gland.

Professor Dixon and the President briefly discussed the communication, and in reply to Dr. H. M. Johnston, Professor M'Loughlin stated that the wall of the sac was thin and composed chiefly of mucous membrane, but a ring of muscle was present around the circumference for a short distance up the wall.

Lantern Demonstrations of Surface Anatomy.

Professor Fraser gave a lantern demonstration of a series of slides, showing (*a*) the living model from the front, the back

and the side, with the superior extremity in various positions; (*b*) a series of the head and neck, showing the various movements, flexion, extension, lateral inclination, and rotation to right and left; (*c*) a series of the trunk, showing its various movements—flexion, extension, lateral inclination, and rotation to right and left; (*d*) a series of the lower extremity, showing the various degrees of flexion from the outer and inner aspects of the limb.

The President and Members expressed their appreciation of the beautiful series of photographs exhibited on the screen.

SECTION OF STATE MEDICINE.

President—W. R. Dawson, M.D., F.R.C.P.I.

Sectional Secretary—W. A. Winter, M.D., F.R.C.P.I.

Friday, February 5, 1909.

The President in the Chair.

The Irish Recommendations of the Royal Commission on the Care and Control of the Feeble-minded.

The President read a paper so entitled. In it he gave a short account of the chief recommendations. [This paper is printed at page 330.]

Mr. Louis Kelly, B.L., said he was astonished that such a revolutionary report was so little known and the extent of its recommendations so little appreciated by those who professed to take an interest in the subject. At a recent meeting of a philanthropic society in Dublin a resolution was proposed asking for a grant, the purpose of which was adequately met by the recommendations before them; and at the meeting at which that resolution was proposed, while other Royal Commissions were referred to, the newspaper report was silent as regards the Commission which they were now discussing. In criticising the recommendations he wished to point out that while past and present Inspectors of Lunatics were exclusively medical men, there was no provision in the law as it stood that those posts should be compulsorily arrogated to medical men. In England there were legal inspectors who had done good work, and he objected to the exclusiveness of the recommendations in that respect. The recommendations also proposed to make permanent the present local committees who controlled the asylums in the country. He had no great veneration for a scheme by

which so much control and authority were vested in men who had absolutely no training or qualification for the duties imposed on them. Such committees had done and were doing things which no person who was interested in the well-being of the insane could justify. Their very irresponsibility might be taken as an excuse for acts of which he would give some examples collected at random, and in which violence to patients under circumstances which gave no justification for it, and committed by men who were notorious for assault even outside the asylum, was condoned. The President had indicated another weakness in the scheme in regard to the course to be adopted when money was sought to be obtained for building purposes. He objected to the proposed multiplicity of control which only perpetuated one of the fatal defects of the present lunacy system of administration in which there were nine bodies which had a certain amount of power and authority. He could not, however, conceal from himself that the Report was a marked advance, and its generosity towards Ireland was one of its outstanding characteristics. In the special grant for the provision of necessary accommodation it went further than it did in respect of England or Wales. He hoped the recommendations of the Report would become more generally known, and be to some extent carried out, and that it would not be pigeon-holed, like the recommendations of the Vice-Regal Commission on Poor Law in 1891, and others, which proposed the most salutary changes.

Dr. Leeper said the subject of the care of the feeble-minded and the degenerates of the country was inseparable from poor-law reform, and the latter would have to come first. In the workhouses, as at present constituted, all the factors that made for degeneracy in the population were being run by State aid. If they reformed the workhouses they would prevent the propagation of degenerates and control the feeble-minded. The speaker said he was old enough to have given written and verbal evidence before the Committee appointed by the Lord Lieutenant of Ireland, the Lunacy Administration, whose report was issued in the year 1891. The recommendations of this Committee were pigeon-holed, and no effect was ever given to them, because they ignored the legal difficulties of the subject, and nothing had been done since to alter or amend the Irish Lunacy Laws. The chief difficulty would be in controlling the feeble-minded, who numbered twice as many as the idiots and imbeciles to-

gether, and who were capable of doing much more injury to the race than the latter. It would be regrettable if they had to depend for the control of the demented and degenerate on the will and whim of Justices of the Peace, one of whom had refused to commit an obvious lunatic who the next day killed a farmer.

Dr. McVittie said the question of teachers for the feeble-minded was a central point. He was of opinion that there were immense numbers of feeble-minded adults who never should have been so. He was satisfied that there were many children in whom intelligence developed late, and that such children, if suitably handled by properly trained teachers, might become useful members of the community. Most of them were ruined in school. Nine out of ten of the teachers under the National Board had nearly all the qualities required to make successful teachers destroyed before they were launched. Their nervous systems were ruined, and their capacity to deal with neurotic or delicate children was eradicated. He had examined many such teachers. They were excitable and neurotic, and had been worn and worried by studying a great deal of rubbish for examinations. They would be getting something done if they pressed on the Government the importance of selecting teachers with greater care as regards their physical training. The propagation of degenerates extended beyond the workhouses. There were children in large towns who were reared in unfortunate circumstances as regards health, and if they were to be sent to schools with long hours he was afraid they must have an ever-increasing ratio of feeble-minded people.

Miss Buchanan, P.L.G., said she felt deeply the necessity for poor-law reform, and at the same time trusted that the recommendations of the Commission would meet with attention. The Vice-Regal Report, if carried out, would do much to reform the present shocking state of the workhouses in Ireland, and the recommendations of the Royal Commission would deal with the feeble-minded. The poor law dealt with destitution, but the feeble-minded and defective need not be destitute in order to be a source of injury to the community. The public did not know that there was only the Stewart Institution to which an imbecile child could be sent, and there were cases constantly coming before her Board of Guardians in which people not absolutely destitute begged that an imbecile child should be sent to the Institution. But because the Stewart Institution had come to be regarded

by Roman Catholics as an unsuitable place for their children, such children could not be sent anywhere but to the wards of a workhouse. Even a child sent to an English Institution had been brought back because it was found that she was of Roman Catholic parentage. There was no place for sane epileptics except the workhouses. The whole subject called loudly for legislation. The recommendations of Royal Commissions were important, but they were no use if they were pigeon-holed.

Mr. J. M. Colles, LL.D., said the legal difficulty was illustrated in the recommendation, that the statutory committee of a Council, if it did not like the guardianship of a child, could constitute itself the guardian of the child. That had struck the Commissioners as wrong, and they provided an appeal to a Court of Summary Jurisdiction, and if anyone was dissatisfied with that they could go to the Judge of Assize. He suggested to the Commission that a better plan would be to vest in the County Court Judge the power of appointing a guardian, not only of a child, but of a feeble-minded adult, and power to define the powers which the guardian should exercise over his ward. The Commissioners seemed to be inspired by the idea that if they could get a designation that would not hurt people's feelings, opposition would be disarmed, but he thought the associations of the term "mentally defective" would ultimately become as objectionable as the terms "lunatic" and "insanity" which were not originally opprobrious.

The President said he was of opinion that the ideal method of dealing with the feeble-minded and every other class of mentally defective would be to make the whole thing a National Service like the Army Medical Service. He thought, however, that it would now be impossible to get rid of the control of the County Councils, and that the recommendations provided for their proper subordination to the central authority had the power to stop the grant if everything was not satisfactorily carried out. The number of defectives in workhouses was very large, and the treatment of their mental condition was about as bad as it could be. Many inmates of prisons were drawn from the feeble-minded; almost always they became alcoholic when thrown into criminal associations, and speedily went from bad to worse. The average of previous convictions for Dublin defectives—who constituted eleven per cent. of the inmates of the prisons—was nearly eighteen. Such facts showed the necessity for interference, and one of the advantages to be derived from any far-reaching system of control

would be the placing under detention of women during the child-bearing period, which would diminish, and probably extinguish the supply of defectives.

SECTION OF MEDICINE.

President—W. G. Smith, M.D., F.R.C.P.I.
Sectional Secretary—F. C. Purser, M.D., F.R.C.P.I.

Friday, March 26, 1909.

The President in the Chair.

Gas in the Stomach: its Causation and Treatment.

Dr. F. Kennedy Cahill read a paper on this subject. [It will be found at page 352.]

The President took exception to the distinction drawn between fermentation and putrefaction. He looked on putrefaction as a mere accident of decomposition; it was simply fermentation *plus* smell. He thought the terms were not susceptible of accurate definition in the sense in which Dr. Cahill used them. He was not hopeful of the possibilities of intestinal antiseptic treatment, as none of the things used had come up to expectation.

Dr. Cox said it was a rare thing for an amount of air capable of causing trouble to get into the stomach by swallowing. He thought the troubles must be looked for within. They had seen cases where mental trouble or sudden shock had led to gas being formed by a process which was probably neither fermentation nor putrefaction, and in which a great amount of misery and depression was relieved by the expulsion of gas. In such cases he thought the subjective sensations were as much to be accounted for by the depression associated with mental causes as by poisoning of the blood by the by-products of digestion, or the uneliminated products of liver digestion.

Sir John Moore said that people with bad teeth, who could not properly masticate their food, might swallow with it very considerable quantities of air. They were familiar also with the connection between cardiac and vascular lesions and gas in the stomach. It was exceedingly hard to disinfect either the stomach or intestines, but symptoms could often be relieved by attention to the toilet of the mouth.

Dr. Cahill, in reply, said the distinction drawn between "fermentation" and "putrefaction" is only for clinical use, seeing that the processes exhibit no absolute line of demarcation. Stress laid on air swallowing by Sir John Moore is in agreement with the observations of the writer. An illustrative case of inflammable gas (CH_4) was quoted, a parallel to that quoted by the President from the work of Sir Henry Marsh.

Notes on a case of Port Wine Coloured Urine (Hæmatoporphyrinuria).

Dr. Parsons said Miss A. B. came under his care early in June suffering from diffuse abdominal pain, vomiting, and constipation. The urine, on standing, became of a deep port wine colour (specimen exhibited). It contained neither albumen nor blood. Neither trional nor sulphonal had been administered at this time. After ten days patient improved, and went away for a change. The symptoms, however, recurred, and she was admitted to hospital towards the end of June. Abdominal pain was present. Sleeplessness was pronounced, and she was given on four consecutive nights fifteen grains of trional. The urine was of a similar colour to that passed early in her illness. Towards the end of the first week after admittance she complained of severe pain in her feet, and on the 7th of July her arms were almost powerless, and she was so ill and feeble that she could barely move in bed. On July 10th the rectal sphincter was relaxed and she commenced to pass under her. A few days later swallowing became difficult, and death took place in a little over two weeks after her admission to hospital, and in less than seven weeks from the onset of her symptoms. Specimens of the urine passed shortly after her admission to hospital, and a day or two before her death, were exhibited. They were of a rich port wine colour, and, though nearly three years old, were acid in reaction, and showed no evidence of decomposition. Though hæmatoporphyrin was probably present, the red colour was not due to this substance, and it was considered that the term hæmatoporphyrinuria, applied to urine of this class, was misleading.

The paper was discussed by the President and Dr. Eustace.

SANITARY AND METEOROLOGICAL NOTES

Compiled by Sir John Moore.

Vital Statistics.

For four weeks ending Saturday, March 27, 1909.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended March 27, 1909, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 25.1 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,142,308. The deaths registered in each of the four weeks ended Saturday, March 27, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Mar. 6	Mar. 13	Mar. 20	Mar. 27			Mar. 6	Mar. 13	Mar. 20	Mar. 27	
22 Town Districts	22.5	23.9	26.1	25 1	24.4	Lisburn -	18.2	22.7	36.4	22.7	25.0
Armagh -	41.2	20.6	20.6	27.5	27.5	Londonderry	20.5	23.0	30.2	18.1	23.0
Ballymena	4.8	9.6	38.3	9.6	15.6	Lurgan -	17.7	22.1	26.6	22.1	22.1
Belfast -	21.6	20.9	21.0	26.7	22.6	Newry -	4·2	16.8	25.2	16.8	15.8
Clonmel -	25.6	10.3	46.2	25.6	26.9	Newtownards	22.9	22.9	22.9	11.4	20.0
Cork -	24.0	26.0	31.5	27.4	27.2	Portadown -	15.5	20.7	31.0	20.7	22.0
Drogheda -	8.2	12.3	12.3	8.2	10.3	Queenstown	19.8	6.6	46.1	19.8	23.1
Dublin - (Reg. Area)	26.6	27.5	29.3	27.2	27.6	Sligo -	9.6	19.2	24.0	19.2	18.0
Dundalk -	19.9	63.8	23.9	16.0	30.9	Tralee -	10.6	31.7	15.9	26.4	21.2
Galway -	19.4	27.2	15.5	27.2	22.3	Waterford -	23.4	13.6	33.1	21.4	22.9
Kilkenny -	4.9	24.6	29.5	34.3	23.3	Wexford -	37.4	23.3	28.0	14.0	25.7
Limerick -	12.3	26.0	17.8	16.4	18.1						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, March 27, 1909, were equal to an annual rate of 1.1 per 1,000, the rates varying from 0.0 in eighteen of the districts to 4.9 in Kilkenny—the 7 deaths from all causes registered in that district including one from diarrhœa. Among the 198 deaths from all causes registered in Belfast are 5 from whooping-cough, one from diphtheria, 4 from diarrhœal diseases, and one from cerebro-spinal fever. Included in the 40 deaths from all causes registered in Cork are one from whooping-cough and 2 from enteric fever.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, March 27, 1909, amounted to 238—104 boys and 134 girls; and the deaths to 216—105 males and 111 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 28.3 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the Area, the rate was 27.2 per 1,000. During the twelve weeks ending with Saturday, March 27, 1909, the death-rate averaged 27.1, and was 1.3 below the mean rate for the corresponding portions of the ten years 1899-1908.

The deaths from all causes included 6 deaths from measles, 2 from whooping-cough, one death each from diphtheria, enteric fever, and epidemic enteritis, and 4 deaths from influenza. In each of the 3 preceding weeks, deaths from measles had been 5, 5, and 5; deaths from whooping-cough had been 3, 5, and 4; deaths from diphtheria had been 4, 2, and one; deaths from enteric fever had been 0, 3, and 3; deaths from diarrhœal diseases had been 2, one, and one; and deaths from influenza had been 5, 5, and 5.

There were 5 deaths from lobar pneumonia, 9 from broncho-pneumonia, and 11 deaths were returned as from *pneumonia* (not defined).

Deaths from all forms of tuberculous disease, which had numbered 51, 35, and 46 in each of the 3 weeks preceding, declined to 29 in the period under notice. This number includes 22 deaths from tubercular phthisis (*phthisis*), 3 deaths from tubercular meningitis, one death from *tabes mesenterica*, and 3 deaths from other forms of the disease.

Of 9 deaths from malignant disease, 2 were attributed to carcinoma, one to sarcoma, and 6 to cancer, or malignant disease (undefined).

The death of one infant, prematurely born, was registered.

Diseases of the brain and nervous system caused the deaths of 8 persons, including 3 deaths from *convulsions*, 2 of the latter being of infants under one month old.

The deaths of 41 persons were attributed to diseases of the heart or blood vessels, and deaths from bronchitis amounted to 44.

Accidental circumstances were the causes of 2 deaths, both of which were registered on the Coroner's certificates.

In 7 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 3 children under 5 years of age (including 2 infants under one year old), and the deaths of 3 persons aged 60 years and upwards.

Fifty-three of the persons whose deaths were registered during the week were under 5 years of age (33 being infants under one year, of whom 9 were under one month old) and 75 were aged 60 years and upwards, including 35 persons aged 70 and upwards, of whom 6 were octogenarians, and one (a female) was stated to have been aged 95 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer

of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended March 27, 1909, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Mar. 6	-	•	•	2	-	-	9	-	2	11	11	-	•	•	2	37
	Mar. 13	-	•	•	3	-	-	8	-	-	6	12	-	•	•	-	29
	Mar. 20	-	•	•	3	-	-	7	-	-	4	12	1	•	•	-	26
	Mar. 27	-	•	•	3	-	-	10	-	1	7	15	-	•	•	-	36
Rathmines and Rathgar Urban District	Mar. 6	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Mar. 13	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Mar 20	-	•	•	1	-	-	1	-	-	1	-	-	•	•	•	3
	Mar. 27	-	•	•	2	-	-	2	-	-	-	-	-	•	•	•	4
Pembroke Urban District	Mar. 6	-	5	-	2	-	-	-	1	-	-	2	-	•	6	-	16
	Mar. 13	-	13	-	3	-	-	-	1	-	2	-	-	•	5	-	24
	Mar. 20	-	9	-	5	-	-	-	-	-	-	2	-	•	9	-	25
	Mar. 27	-	11	-	5	-	-	1	-	-	-	-	-	•	16	-	33
Blackrock Urban District	Mar. 6	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 13	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 20	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 27	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
Kingstown Urban District	Mar. 6	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Mar. 13	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Mar 20	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar 27	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Mar. 6	-	•	•	5	-	-	7	-	1	-	2	1	•	•	-	16
	Mar 13	-	•	•	4	2	-	2	-	1	-	5	-	•	•	2	16
	Mar. 20	-	•	•	4	-	-	5	-	1	-	6	3	•	•	1	20
	Mar. 27	-	•	•	4	-	-	3	-	1	-	5	1	•	•	1	15

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended March 27, 1909, 27 cases of measles were admitted into hospital, 22 were discharged, there were 3 deaths, and 79 cases remained under treatment at its close.

Six cases of scarlet fever were admitted to hospital, 8 were

discharged, and 36 cases remained under treatment at the close of the week. This number is exclusive of 9 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

There was no case of typhus under treatment in hospital during the week.

Six cases of diphtheria were admitted to hospital, 8 were discharged, and 35 patients remained under treatment at the close of the week.

Seven cases of enteric fever were admitted to hospital, 14 were discharged, there were 2 deaths, and 36 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 7 cases of pneumonia were admitted to hospital, 11 were discharged, there were 3 deaths, and 27 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, March 27, in 76 large English towns, including London (in which the rate was 21.5) was equal to an average annual death-rate of 19.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 20.5 per 1,000, the rate for Glasgow being 22.3 and for Edinburgh 17.2.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended March 27. From this report it appears that of a total of 63 cases notified, 23 were of phthisis, 19 of scarlet fever, 12 of diphtheria, 7 of erysipelas, one of puerperal fever, and one of cerebro-spinal fever. Among the 359 cases of infectious diseases in hospital at the close of the week were 149 cases of scarlet fever, 61 of whooping-cough, 47 of phthisis, 42 of diphtheria, 15 of measles, 10 of erysipelas, 5 of cerebro-spinal fever, one of enteric fever, one of puerperal fever, and one of chicken-pox.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of March, 1909.

Mean Height of Barometer, - - -	29.516 inches.
Maximal Height of Barometer (12th, at 9 a.m.),	30.195 ,,
Minimal Height of Barometer (18th, at 3 p.m.),	28.879 ,,
Mean Dry-bulb Temperature, - - -	40.0°.
Mean Wet-bulb Temperature, - - -	38.2°.
Mean Dew-point Temperature, - -	35.7°.
Mean Elastic Force (Tension) of Aqueous Vapour	.214 inch.
Mean Humidity, - - - - -	85.2 per cent.
Highest Temperature in Shade (on 24th), -	55.3°.
Lowest Temperature in Shade (on 4th), -	25.8°.
Lowest Temperature on Grass (Radiation) (3rd),	22.2°.
Mean Amount of Cloud, - - -	63.9 per cent.
Rainfall (on 19 days), - - -	2.693 inches.
Greatest Daily Rainfall (on 28th), - -	.439 inch.
General Directions of Wind, - - -	N.W., E.S.E.

Remarks.

As in 1908, so in 1909, March proved to be an unsettled, cold and rainy month—the mean temperature was actually 1.9° Fahrenheit below that of January and the same amount below that of February. The mean minimum temperature in the screen was only 35.7°, compared with 38.4° in January and 38.6° in February, and the mean minimum temperature on the ground was 33.4°, compared with 34.5° in January and 35.6° in February. The mean maximum temperature was only 45.9°, compared with 46.9° in January and 46.8° in February.

True to the ancient adage, March "came in like a lion," and the first week of "March many weathers" was very wintry in all parts of the British Isles. Snow fell frequently, and in considerable or large amounts in nearly all districts, and sharp frosts were experienced—in fact, in many places it was the coldest week of the winter. In Dublin the deficit in temperature amounted to 8.7°. In the south-east of England the thermometer fell to zero at Marlborough on the 3rd, and in Scotland to 1° at West Linton on the 5th; at the latter station -.5° was recorded on the grass. The lowest temperatures in Ireland were 14° at Markree Castle and 15° at Cahir, on the 6th. The general condition continued

wintry and unsettled in the second week and until the 17th, after which date temperature rose very decidedly. In the fourth week and to the close the weather was very unsettled, with much cloud and frequent falls of rain. Aurora borealis was seen on the evenings of the 19th and 20th.

In Dublin the arithmetical mean temperature (40.8°) was 2.9° below the average (43.7°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 40.0°. In the forty-five years ending with 1909, March was coldest in 1867 and 1883 (M.T. = 39.0°), and warmest in 1903 (M.T. = 48.1°). In 1908 the M.T. was 42.0°.

The mean height of the barometer was 29.516 inches, or 0.400 inch below the corrected average value for March—namely, 29.916 inches. The mercury rose to 30.195 inches at 9 a.m. of the 12th and fell to 28.879 inches at 3 p.m. of the 18th. The observed range of atmospheric pressure was, therefore, 1.316 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 40.0°. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .485) the M.T. becomes 40.6°. The arithmetical mean of the maximal and minimal readings was 40.8°, compared with a thirty-five years' (1871–1905) average of 43.7°. On the 24th the thermometer in the screen rose to 55.3°—wind, W.S.W.; on the 4th the temperature fell to 25.8°—wind, W. to N.W. The minimum on the grass was 22.2°, on the 3rd.

The rainfall was 2.693 inches, distributed over 19 days. The average rainfall for March in the thirty-five years, 1871–1905, inclusive, was 1.910 inches, and the average number of rain-days was 17.0. The rainfall, therefore, and the rain-days were above the average. In 1867 the rainfall in March was very large—4.972 inches on 22 days. On the other hand, the smallest March rainfall was .288 inch on 8 days in 1893. In 1908 the rainfall was 2.940 inches on 22 days.

The atmosphere was foggy on the 7th, 22nd, 23rd, 28th and 29th. High winds were noted on 4 days, reaching the force of a gale on only one day—the 18th. Snow or sleet occurred on the 1st, 2nd, 5th, 6th, 9th, 14th and 16th; hail fell on the 5th, 8th, 9th, 10th, 11th, 14th, 15th, 16th and 27th. A solar halo appeared on the 20th and 27th, and a lunar halo on the 4th and 9th. Lightning was seen on the night of the 15th, and thunder was heard on the afternoon of the 27th. There was an aurora on the

20th. Temperature reached or exceeded 50° in the screen on 6 days, compared with 10 days in 1908, 25 in 1907, 17 in 1906, 20 in 1905, 10 in 1904, 18 in 1903, 23 in 1902, and only 6 in 1901. It fell to 32° in the screen on 10 nights. The minima on the grass were 32° or less on 14 nights, compared with 16 nights in 1908, 9 in 1907, 12 in 1906, 8 in 1905, 13 in 1904, 4 in 1903, 5 in 1902, and 11 in 1901.

The rainfall in Dublin during the three months ending March 31st amounted to 4.550 inches on 41 days, compared with 6.367 inches on 58 days in 1908, 3.666 inches on 42 days in 1907, 7.291 inches on 59 days in 1906, 5.378 inches on 46 days in 1905, 7.938 inches on 55 days in 1904, 9.126 inches on 61 days in 1903, 5.114 inches on 43 days in 1902, 5.656 inches on 46 days in 1901, and a thirty-five years' (1871–1905 inclusive) average of 6.130 inches on 50.0 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William J. Good, reports that the mean height of the barometer was 29.515 inches, the highest reading observed being 30.187 inches at 9 a.m. of the 12th, the lowest, 28.940 inches at 9 a.m. of the 18th. The mean temperature was 40.8°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 40.5°. The screened thermometers rose to 56.0° on the 24th, and fell to 26.0° on the 3rd and 4th. The grass minimum was 14.0° on the 5th. The mean daily maximum was 46.1°; the mean daily minimum, 35.4°; and the mean daily minimum on the grass 29.4°. Rain fell on 17 days to the amount of 2.605 inches, .440 inch being measured on the 28th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 78.5, giving a daily average of 2.5 hours. There were 9.5 hours of bright sunshine on the 21st. The mean temperature of the soil at 9 a.m. at a depth of one foot was 40.7°; at a depth of 4 feet, it was 43.0°. During the month the subsoil temperature at 4 feet decreased from 44.0° on the 1st to 42.0° on the 9th, 10th and 11th, and then increased intermittently to 44.4° on the 31st.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, 4.275 inches of rain fell on 20 days. The maximal fall in 24 hours was .800 inch on the 5th.

At Clonsilla, Greystones, Mr. A. Victor Price recorded a rainfall

of 4.36 inches on 20 days, the maximum in 24 hours being .94 inch on the 5th—the result of a heavy snowstorm. The mean temperature of the month was 37.3°, the extremes being—lowest, 28°, on the 5th and 16th ; highest, 52°, on the 24th. The total rainfall at Clonsilla, Greystones, since January 1, equals 5.87 inches on 37 days.

Dr. L. T. Burra, Resident Medical Officer, reports that the rainfall at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, was 4.786 inches on 20 days, the maximal fall in 24 hours being .830 inch on the 28th. The mean air temperature was 39.6°—the extremes being—highest, 53.3° on the 24th ; lowest, 25.4° on the 5th.

Mr. T. Bateman returns the rainfall at The Green, Malahide, Co. Dublin, at 2.901 inches on 17 days, compared with 3.473 inches on 24 days in 1905, 1.071 inches on 15 days in 1906, 1.677 inches on 15 days in 1907, and 2.450 inches on 20 days in 1908. The greatest rainfall in 24 hours was .575 inch on the 28th. The extremes of temperature in the shade were—highest, 51.5°, on the 28th ; lowest, 21.0°, on the 2nd. The mean temperature was 37.3°.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 22 days to the amount of 3.52 inches, compared with 2.20 inches on 13 days in 1901, 1.98 inches on 18 days in 1902, 4.53 inches on 28 days in 1903, 2.50 inches on 21 days in 1904, 3.31 inches on 28 days in 1905, 1.80 inches on 17 days in 1906, 1.62 inches on 18 days in 1907, and 3.56 inches on 24 days in 1908. The greatest daily rainfall was .57 inch on the 27th. The temperature in the shade ranged from 54° on the 24th to 25° on the 5th. The mean shade temperature was 40.3°, compared with 41.2° in 1901, 46.4° in 1902, 45.7° in 1903, 41.1° in 1904, 45.0° in 1905, 43.9° in 1906, 46.3° in 1907, and 41.8° in 1908. Since January 1st, 1909, the rainfall at this station amounts to 5.50 inches on 45 days, compared with 6.71 inches on 40 days in the first quarter of 1901, 7.02 inches on 43 days in 1902, 11.36 inches on 62 days in 1903, 10.14 inches on 67 days in 1904, 6.76 inches on 56 days in 1905, 8.67 inches on 56 days in 1906, 3.45 inches on 38 days in 1907, and 7.01 inches on 63 days in 1908.

Dr. C. Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park, Dublin, as 2.750 inches on 21 days, .470 inch being measured on the 18th.

Mr. Robert O'B. Furlong, C.B., reports a rainfall of 3.38 inches on 22 days at Cloneevin, Killiney, the greatest measurement in

24 hours being .57 inch on the 28th. At this station the average rainfall for March in the 24 years, 1885–1908, inclusive, was 1.948 inches on 17 days. Since January 1, 1909, 4.93 inches have fallen at Cloneevin on 42 days. Snow or sleet fell on 10 days in March—namely, the 1st, 2nd, 5th, 6th, 7th, 10th, 11th, 13th, 15th, and 16th.

Mr. W. Miller registered 3.17 inches of rain at Cork on 20 days. The greatest fall in 24 hours was .70 inch on the 17th, and again on the 27th. The rainfall was 0.50 inch in excess of the average for March. Only 0.26 inch fell during the first 16 days. The rainfall of the first quarter of 1909 was 7.61 inches, or 2.69 inches less than the average.

The Rev. Arthur Wilson, M.A., writing from Dunmanway Rectory, Co. Cork, states that 4.92 inches of rain fell there on 21 days, 1.17 inches being measured on the 17th, 1.06 inches on the 27th, and .73 inch on the 23rd.

At the Ordnance Survey Office, Phœnix Park, Dublin, rain fell on 21 days to the total amount of 2.945 inches, the largest measurement being .620 inch on the 27th. The duration of bright sunshine was 103.8 hours, of which 10.3 hours occurred on the 21st.

PERISCOPE.

ADEQUATE DRAINAGE IN BRAIN ABSCESS.

In the *Medical Record* for Jan. 23, 1909, is a paper by Fred. Whiting, of New York, entitled "Adequate Drainage the essential step in the successful surgery of Brain Abscess." He speaks of the disappointment occasioned by the frequent fatal termination of a case where an abscess of the brain complicating a chronic otitis media has been accurately located and incised. As a rule these cases do well at first, and then they develop symptoms of acute purulent encephalitis, which progresses rapidly until meningitis or ependymitis supervenes, causing death. As the result of cutting sections of the brain at two autopsies in such cases, he found discoloured and softened areas of brain tissue radiating from the abscess wall and the drainage channel at various depths, with infected areas corresponding to fistulous paths and sinuses which had been made in the course of dressings in attempts to introduce gauze into the abscess cavity along a canal which could not be inspected. In order to avoid this

injury during the necessary dressings subsequent to operation he devised an instrument which he has called the encephaloscope. This appliance was designed to permit, with the aid of artificial illumination, the critical inspection of the interior of a brain abscess cavity in such a manner as to avoid all violence to the brain tissue. Moreover, by the employment of this instrument the introduction and proper adjustment of gauze or other drains in the depths of the wound, both at the time of operation and during subsequent dressings, became an exceedingly simple and altogether safe procedure. He concludes as follows:— (1) Scrupulous care is to be exercised in inducing complete evacuation of all pus and pyogenic material at the time of operation. (2) The establishment and maintenance of an uninterrupted communication, by means of gauze or other drains, between the deeper portion of the abscess cavity and the drainage opening, without adding unduly to the pressure upon the brain substance surrounding the walls of the abscess, is essential to a successful result. (3) It is necessary to avoid, not only at the time of operation, but especially during the after-treatment, all gratuitous infection of healthy surrounding brain tissue by misdirected efforts at the introduction of gauze or other drainage material attempted without inspection of the abscess path. If these three points are attended to he is convinced that we shall save many lives which, notwithstanding the promise of a brilliant operation, were formerly lost.

THE HÆMORRHAGIC COMPLICATIONS OF APPENDICITIS.

MM. A. Broca and P. Émile-Weil, in *La Presse Médicale* for Jan. 2, 1909, have an article on this topic. They refer especially to the cases of multiple hæmorrhages as illustrated by a case whose history they give. A boy of ten and a half years old had suffered from gastro-intestinal trouble for several years; he then had a fairly typical attack of acute appendicitis, for which he underwent operation. A thickened, congested, non-adherent appendix was removed. All went well for three weeks after the operation, when he was seized with violent epistaxis, which lasted for several hours, and recurred the following day; the bleeding was found to come from a small artery, and was stopped by the application of the galvano-cautery. A few days afterwards, on examination, the child was very pale and anæmic, and showed several large ecchymoses on his body and some bleeding from the gums. He

was given an injection of fresh anti-diphtheritic serum, and made a rapid recovery. The blood, when examined during the hæmorrhagic crisis, showed some abnormalities of coagulation. The time was somewhat increased, and the clot did not contract as well as normally, and the expressed serum was yellow in colour. The addition of fresh anti-diphtheritic serum or calcium solution improved the coagulation *in vitro*. The authors consider that the liver plays an important part in these hæmorrhagic diatheses, and that they are to be looked upon as a milder form of the cases described by Dieulafoy under the name of "appendicular black vomit"; here the undoubted connection with the liver is shown by the appearance of jaundice.

INTESTINAL HÆMORRHAGE AFTER APPENDICECTOMY.

In the *La Presse Médicale* for Feb. 3, M. Guibé has an article so entitled. He divides these cases into two classes—(1) Those where the hæmorrhage comes from the region of the appendix; these are due to a faulty technique in the method of removal of the appendix and the treatment of the stump. (2) Those cases where the hæmorrhage occurs at a distance from the appendix, most frequently from the duodenum. This latter form of bleeding is occasionally found in cases of appendicitis complicated with general peritonitis, and is usually accompanied by hæmatemesis, and is due to an ulcer of the stomach or duodenum. It occurs also in acute cases where there is no general peritonitis; here also it is frequently associated with hæmatemesis, and the cause is probably gastric or duodenal ulceration. The cases, however, where this intestinal hæmorrhage occurs after the operation performed during the interval are the most interesting. No fatal case of this kind has yet been reported, so there are no *post-mortem* findings to go on. There are two types of these cases—those in which the hæmorrhage occurs within the first twelve hours and those where the hæmorrhage occurs later, from the third to the seventh day. In the first cases the hæmorrhage probably occurs at the time of the operation from the cut appendix or from some injury to the intestine. The author considers that the latter types are due to the intestinal operation, and are probably the result of a thrombosis causing embolism of the vessels of the stomach or intestine, or to a retrograde venous embolism. He also points out that a similar condition is sometimes seen in other operations on the gastro-intestinal tube.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XVIII.—*Physical Deterioration and a Remedy.*[a] By JOHN B. STORY, M.B., M.Ch. Univ. Dubl., F.R.C.S.I.; Surgeon to the Royal Victoria Eye and Ear Hospital, Dublin; Professor of Ophthalmic and Aural Surgery, R.C.S.I.

NOTWITHSTANDING all that has been written of late upon physical degeneration of the population, and the necessity for remedies, it will scarcely be credited that there are in this Kingdom absolutely no statistics whatever relating to the physical state of its inhabitants.

We know the birth-rate and the death-rate, and the average length of life of the individual, but whether the average man nowadays is at any given age physically inferior or physically superior to the average man of the same age one or two generations ago cannot be ascertained by direct evidence in Great Britain and Ireland. In every other civilised country, except the United States, there is ample evidence to determine whether the population is physically deteriorating or the reverse.

Although no direct evidence is forthcoming there is a

[a] Read before the Section of State Medicine in the Royal Academy of Medicine in Ireland on Friday, April 30, 1909. [For the discussion on this paper see page 450.]

good deal of indirect evidence to show that our people are degenerating.

Statistics show that there is a steady though gradual increase in the proportion that our urban bears to our rural population, and that urbanisation tends to the physical deterioration of the race is admitted by all authorities. The relative increase of the urban population is, of course, not so marked in Ireland as in Great Britain, but it exists, and must have the same effects more or less here that it has elsewhere.

Sir Robert Matheson has kindly written the following letter relating to this matter :—

"Referring to your query to Dr. Falkiner in your letter of the 10th December—*i.e.*, Is the urban population increasing relatively to the rural?—it appears that the percentage of decrease between the Census of 1841 and that of 1901 in the civic unions of Ireland—(*i.e.*, unions containing towns which in 1901 had a population of 10,000 or upwards)—was 4.3 per cent., and that the decrease in the remaining unions of Ireland between the aforementioned censuses, 1841 and 1901, was 55.5 per cent. It would appear from these figures that neither the civic nor rural districts of Ireland show an increase in population (in the aggregate), but that in the rural unions the percentage of decrease is much higher than in the civic unions."

There are plenty of statistics, from Germany and elsewhere, to show the bad effects of urbanisation.

To quote from a valuable paper read by J. Ellis Barker at the British Association meeting in Sheffield last year :—In the agricultural districts of East and West Prussia 70 per cent. of the recruits for the army come up to the standard of fitness, while in the manufacturing kingdom of Saxony only about 50 per cent. attain the standard. These figures show the inferior physique of the manufacturing district compared with the agricultural, but the town *per se* is no better. Berlin is surrounded by the industrial province of Brandenburg, and the military fitness of the respective populations is—Berlin 34, Brandenburg 57, while agricultural East Prussia is 69 ; and it must not be forgotten that some 35 to 40 per cent. of the Berlin recruits are country born.

Ellis Barker quotes also German statistics relating to the military fitness of town dwellers and their sons, which show that the second generation is markedly less fit than the first numerically, and also that those of it who are fit are inferior, as regards height and chest measurement, to the fit of the first generation.

As contrasted with these figures it is found that the percentage of fit recruits and the average height and chest measurement do not alter for the worse from generation to generation in agricultural districts.

If we take the evidence supplied by the examination of recruits for our own army it would at first sight appear that our people are degenerating rapidly. The standard for the army has been lowered from 5 feet 6 inches to 5 feet 5 inches in 1872, 5 feet 3 inches in 1883, 5 feet 2 inches in 1897, and to 5 feet in 1901. Also, the percentage of rejections has risen from 16.3 in 1900, 19.46 in 1901, to the figure of 22.46 in 1902. And Sir Frederick Maurice calculates that about 60 per cent of the total applicants are unfit to serve. Over 90 per cent. were actually rejected at Manchester in 1905. But recruiting statistics are no evidence of the general health or physique in this Kingdom, though, of course, they are in all other civilised countries, except the United States, and our enlightened rulers provide no other evidence on this point.

The Anthropometric Committee of the British Association have compared the professional and commercial classes, with the following results :—

	Height			Weight		
	Age 12	Age 18	Age 25–29	Age 12	Age 18	Age 25–29
Professional	57.29 in	68.26 in.	69.14 in.	84.9 lbs.	146.4 lbs.	156.3 lbs.
Commercial	55.29 in.	67.44 in.	67.54 in.	73.2 lbs.	135.1 lbs.	152.2 lbs.

The first class is made up of people whose sons go to public schools and universities, the second sends its sons to schools

till the age of fifteen or sixteen, and then to the desk or counter. The finer physique of the former is no doubt due to more air and exercise at school, and to the prolonged open-air life, for three or six years more after the other boys are at city work.

Labouring people in town and country show the same difference :—

	Height			Weight		
	Age 12	Age 18	Age 25–29	Age 12	Age 18	Age 25–29
Labouring (Country)	53.67 in.	66.53 in.	67.51 in.	75.9 lbs.	138.7 lbs.	155.6 lbs.
Artisans (Town)	53.72 in.	65.60 in.	66.60 in.	73.0 lbs.	129.3 lbs.	145.02 lbs.

While it must be admitted that the progressive physical deterioration of our people is not—and cannot be—proved, it is evident that year by year a larger proportion of us live under conditions which weaken and stunt us, most probably from loss of fresh air and exercise, and it is worth while considering what means can be adopted to equalise to a greater or less extent the physical conditions of our people.

I desire to speak of and for the whole people of this Kingdom, and, though the injurious urbanisation is chiefly marked in England and Scotland, I believe the same conditions that exist in Great Britain obtain, though to a lesser extent, in Ireland.

Much has been done in our own time, and more will be done in the future, to improve the physical health of our people by better sanitation, better housing, the providing of open-air spaces in our crowded cities, and the sanitary education of the community. I need here only allude to the anti-tuberculosis crusade which has been and is being so ably carried on by the Countess of Aberdeen.

I do not propose to deal with any measures of this character, or to treat of any improvements that can be effected by the

voluntary efforts of the rich, or the learned, or the philanthropic; but I do propose to direct your attention to what can be done by the State, and by the State alone, and what it is the duty of the State to do for the sake of the health of the community, both physical and moral, and what indeed the vast majority of thoughtful observers consider must be done before long if the State is to continue to hold her own in this Twentieth Century.

The State has already recognised that the matter is one of importance, and that it concerns the body politic, for an Interdepartmental Committee was appointed to consider the question of Physical Deterioration, whose report was issued in 1904; and another Commission—a Royal Commission—was appointed on Physical Training (Scotland, 1903).

The first Commission makes the following recommendations:—

1. That a permanent anthropometric survey should be made of all children and young persons—a recommendation that will, I am sure, be unanimously endorsed by this Academy.

2. It emphatically asserts that no games can supply the place of methodical physical instruction—an opinion with which most medical men will be in agreement.

3. It recommends that State aid be given to all clubs and cadet corps in which physical or quasi-military training is conducted, and also that all growing lads should be COMPELLED to attend classes where drill and physical exercises are carried on.

The Royal Commission on Physical Training recommends physical drill for all children—town and country alike—as an essential part of elementary education, and comes to the following conclusions:—

1. Physical training is of equal importance with mental training.

2. It is quite as important for girls as boys.

3. Systematic physical training is necessary both for town and country children.

It highly approves boys' brigades and cadet corps for growing lads.

The same point of view is to be found in the majority report of the Poor Law Commission, which has lately been published—viz., that physical drill should be more prolonged and thorough than hitherto—and many of the Commissioners assert that "the most effective and thorough method of infusing into boys approaching adolescence a sense of discipline and self restraint, both physical and moral, and of improving their physique for subsequent industrial occupations, would be a universal system of a short period of military training."

Let us consider what is done for physical training in our schools at present.

Take the richer class of boarding schools first. It might seem at first sight that there is nothing to find fault with from a physical point of view in the education of the boys in these schools. The boys are well fed, and, though it is shrewdly suspected that they may shirk a good deal of the mental training provided, the open air exercises considered suitable are enforced by the most rigid and relentless system of compulsion that exists in any known community—a democratic compulsion enforced by the boys themselves. But there is no organised supervision by competent medical men of this compulsory gymnastic performance. In our army physical training is under strict medical supervision.

Our most expensive public schools fail utterly to provide our boys with a "sound system of physical training," which the Royal Commission on Physical Training considers to be "a necessary element in the liberal education of every citizen," or with the "methodical physical training," which the Inter-departmental Commission asserts to be "indispensable, and the absence of which can be made up for by no scheme of games."

In the middle class boys' schools, from which some of the pupils enter universities, and others go into business or "cram" for examinations for Civil Service, &c., the attention to out-door games is much less than in the big public schools, and systematic physical drill is, I might say, unheard of. The effects are seen in the inferior physique of the commercial classes as compared with the professional class published by the Anthropometric Committee of the British Association.

In Ireland—will it be credited?—no provision whatever is made for physical education in our intermediate schools! At least, the Intermediate Education Board makes none, and, so far as the official regulations are concerned, the children might be merely naked minds unattached to any corporeal matter.

In the elementary schools under the Board of National Education physical training is so neglected that a nominal half hour per week is the very utmost that is by way of being compulsory or, perhaps I should say, recommended.

In this connection I might mention that a letter upon the question of Swedish exercises in the National Schools was written by the Right Hon. Mr. Justice Ross to the two Royal Colleges, and the Council of the Royal College of Surgeons in Ireland passed the following resolution unanimously :—" That this Council is of opinion that it is desirable that an approved system of physical culture should be introduced as a regular subject of education in the National Schools of Ireland."

It is obvious that the Council of the College was not in a position to decide off-hand what the approved system should be.

A similar resolution has been passed by the Royal College of Physicians of Ireland.

The composition of the two bodies, the Intermediate Commissioners and the Board of National Education, is such that no one could expect authoritative opinions from either body on the subject of physical education. The medical profession, which is the only one specially competent to deal with the matter, is represented by only one individual on each Board, and these are appointed not as representatives of the medical aspects of the questions at issue, but as heads of educational institutions who happen to have graduated in Medicine.

The higher class elementary schools, to which our richer citizens send their children, are no better managed in this respect than the schools of the National Board. Drill and physical exercises, and even dancing, are rarely included in the purely intellectual curriculum, and those parents who, for any reason, desire that their children should have gymnastics

of any sort or dancing have to send them to special instructors elsewhere, and defraud them of some of the school teaching for which they have to pay.

I need not speak of the boys who leave elementary schools at the age of thirteen or fourteen. We all know that there is no education provided for them afterwards, mental or physical. They become wage earners, and soon assume the irresponsible independence that characterises the man who earns his own bread.

That physical deterioration is highly probable in these Islands has, I think, been proved by the evidence submitted, and the question naturally arises—What means have we at our disposal to counteract the deteriorating influence at work ?

There are very many means tending to effect this desirable end, as has been already stated, but I shall now concentrate my attention upon only one of them, and I do this in the hopes that I shall also concentrate the attention of my audience upon the same means. I allude to the invaluable means of physical drill in schools, and military training after leaving school.

The proposals I advocate are systematic physical exercises under medical supervision as a necessary part of school education, compulsory in all schools—private and public, elementary and secondary—girls' schools and boys' schools alike, and not restricted to half an hour per week as in the Irish Board schools.

It is, I hope, unnecessary nowadays to bring forward arguments to prove that physical education is as essential as mental to the development of a healthy human being, so I shall not dilate upon this part of the programme I advocate. Of course, I am far from asserting that no children receive a proper physical education. What I do assert is that those who do obtain it obtain it accidentally, and that it is the duty of the State to accept the responsibility of insisting that the physical education of its youth should be attended to just as the mental education is.

The second point I would insist upon is that this physical education should not be abandoned in the case of the boys, at least (I do not on the present occasion attempt to deal with the girls), until they have reached the age of eighteen.

Physical drill, as already observed, should be compulsory in all educational establishments until that age, and the boys who leave school before eighteen should be enrolled, compulsorily, in boys' brigades, cadet corps, &c., under State supervision and medical inspection, until the age of eighteen. It will be observed that these proposals have been unanimously recommended by the Interdepartmental Commission on Physical Deterioration.

Thirdly, and lastly, all boys physically fit should be enrolled in a Home Defence Army at the age of eighteen for six months' military training. It must be remembered that by military training is not meant a life in city barracks, where a large part of the recruit's time is taken up by household work, which has no relation whatever to his efficiency as a soldier, or to his mental or physical health. The young men are, in fact, to be at a school, where the subjects of study are military training with special regard to the physical benefits it confers upon its votaries, and all time not given to physical and military training is to be devoted to their mental training, or some art or trade that would be useful to the man when this period of his schooling was over.

The above are the proposals I advocate with the object of improving the health and physique of our young men.

It may be asked what evidence is there that a six months' period of military training has any good effect on the physique of young men ?

Well, there is abundant evidence to be obtained in almost every civilised country, even including our own.

The following are taken from the Navy. The recruits were measured before and after the course of physical drill, which lasts three and one half months :—

	Age	Weight	Chest
Begins ..	17.11	125½ lbs.	32.8 inches
Ends ..	18.2	131 ..	34.5 ..

A point worth noticing in this connection is that the great

gain in physical health and strength occurs in all countries during the first six, or even the first three, months of military exercises.

In the French army, measurements show that the average gain in height during the first six months is one-tenth of an inch, in weight 3.23 lbs., in circumference of chest one half inch.

The gain to the physical and moral health of the boys enrolled in boys' brigades and cadet corps is universally admitted; and my proposal is that the State should, for its own sake, and for the sake of those boys who cannot be reached by the philanthropic efforts of voluntary associations, take up this, its own duty, and give to every boy in the kingdom the same advantages that are provided by the private efforts of benevolent volunteers for a small and select number of our youth. When one thinks of the numerous agencies at work to provide boys with drill halls, with gymnasiums, with holiday camps, with odd days in the country, &c., and remembers that it is the duty of the State to provide all this and more at the public cost, and that there is no touch of charity about the matter—the State should carry out this work for its own advantage—one wonders that the duty has been so long neglected.

Compared with the rich man's son, the son of the poor man labours under many disadvantages, and to my mind the greatest of all these is the almost complete emancipation he enjoys from parental or other control at a period of his life, adolescence, when more supervision and discipline is really required than at any other time.

The rich man's son is in *statu pupillari*, with even his very games regulated, till he arrives at the age of eighteen; and even after that age, though he has much more freedom, he is not yet his own master, but has to submit to the discipline of his college or university.

The poor man's son becomes more or less his own master at about the age of fourteen, and, though he may have to work, has his leisure quite at his own disposal, and very naturally spends it often in pleasures that are good for neither his physical nor his mental nor his moral health.

How would those of my audience who have sons to educate like their sons to have the full uncharted liberty at the age of fourteen that the sons of poor men possess? Or, to put it more personally, how many of ourselves could have safely been entrusted with such a freedom from control when we were at this critical period of our own lives?

We may indeed regard the boys' brigades and cadet corps as the public school of the poor boy, and the military training as his university, and we may be certain that the grown man will look back upon his time in the boys' brigade, and his military training with the same pride and fondness as richer men look back upon their public school and their college.

In conclusion I would propose the following four resolutions :—

(1.) That a permanent Anthropometric survey should be made of children and young persons.

(2.) That physical drill should be compulsory (in conjunction with a proper system of medical inspection) in all schools, primary and secondary.

(3) That all boys between the ages of fourteen and eighteen who are physically fit should be compelled to belong to boys' brigades or cadet corps, or to attend classes where physical drill of a military character is conducted.

(4.) That all youths at the age of eighteen (rich and poor), who are physically fit, should be compelled to undergo a period of military training.

ART. XIX.—*The General Anæsthetics Bill*, 1908.[a] By T. PERCY C. KIRKPATRICK, M.D., F.R.C.P.I.; Physician to Steeven's Hospital; Anæsthetist to the Dental and Orthopædic Hospitals, Dublin.

THE attempt to legislate on the subject of the administration of general anæsthetics that is being made in Parliament during the present session presents some features which render it

[a] A Paper read before the Section of State Medicine of the Royal Academy of Medicine, Ireland, on Friday, April 30, 1909. [For the discussion on this paper, see p. 452.]

important that the matter should receive the careful consideration of the medical profession. The Bill dealing with this matter has already been read for the first time in the House of Commons, and, as it is expected that the second reading will be taken shortly, it has seemed proper to the Council of this Section that a discussion on the matter should take place. It is my earnest desire that the paper which I am about to read to you should provoke such a discussion, and that the result of this discussion will have due weight with Parliament in fashioning the proposed legislation.

During recent years much attention has been directed to the number of deaths that have occurred during the administration of general anæsthetics. The problem of how to prevent the occurrence of these deaths has occupied the attention of medical men interested in the matter for many years, and on various occasions special efforts have been made to find a solution. Thus, in the year 1864, the Royal Medico-Chirurgical Society received a report from a special committee appointed by that body "to inquire into the uses and the physiological, therapeutical, and toxical effects of chloroform, as well as into the best mode of administering it, and of obviating any ill consequences resulting from its administration." In the year 1879 the Glasgow Committee of the British Medical Association had under consideration the general subject of the safety of anæsthetics. In 1889 and 1890 the reports of the first and second Hyderabad Commissions were published, and in 1901 the Committee of the British Medical Association again reported on the subject. Besides these collective reports a great deal of individual attention has been devoted by anæsthetists to both the clinical and the scientific aspects of the matter. Last year the subject was brought prominently before the public by Dr. F. J. Waldo, one of the Coroners for the City of London, whose attention had been called to the matter by the number of deaths, resulting from this cause, that he was called on to investigate. Dr. Waldo stated that he believed that the number of deaths recorded bore a very small proportion to the number that actually occurred, and that no reliable statistics on the matter were available. Though the

actual number of deaths from this cause is small, yet this number has shown a tendency to increase in recent years. Thus the Annual Returns of the Registrar-General for England and Wales show that in the year 1902 there were 148 deaths; in 1903, 146 deaths; in 1904, 154; in 1905, 155; and in 1906, 183—a total for the five years of 786, or an annual average of 157.1. Eight deaths from anæsthetics were registered in Ireland during the year 1907. It is not my present purpose to discuss the meaning of these figures or the conclusions which may be drawn from them, but in connection with them there are two points which should be kept in mind. It will be admitted that the number of operations is probably on the increase, and, not only that, but at the present time more operations of a grave nature are undertaken than formerly, and that too with the patient in a condition which a few years ago would have been considered a contraindication to any operation. Since such operations often entail for their performance a profound narcosis, one would expect an increased rate of mortality during anæsthesia. At the same time, anyone who reads the records of fatalities given in the medical papers cannot fail to be struck with the number that take place during operations of a comparatively trivial nature, and in patients whose condition in no way forewarned the operator of the fatal result.

The proposed legislation appears to be the direct result of the attention thus called to these matters, and it is with this legislation that we are now especially concerned. I have not been able to procure a copy of the Bill as read in the House of Commons last month, so shall devote my attention to the Bill as submitted to the General Medical Council last year by the Privy Council. This Bill proposes to regulate the administration of general anæsthetics by two main provisions:—(1) By limiting the permission to administer drugs for the purpose of producing general anæsthesia to legally qualified medical practitioners, registered under the Medical Acts; and (2) by making compulsory on all medical students, before registration, a thorough theoretical and practical instruction in anæsthetics, and by compelling them personally to have

administered anæsthetics under the supervision and to the complete satisfaction of their respective teachers.

With regard to the principle of the second provision, there will, we think, be little difference of opinion. If medical men are to have special privileges in the matter it should only be because they have special qualifications for those privileges. One can only regret that the possession of these qualifications is to be forced on the profession by public legislation, instead of being eagerly embraced by the profession itself.

For many years past anæsthetists have urged the necessity for medical students to receive special instruction in this subject before they were admitted to their qualifying examinations, but the licensing bodies and the General Medical Council made no move in the matter until some three years ago. Even at the present time it is quite possible for a man to be entered on the Medical Register without having any experience whatever in the difficult and important duty of administering general anæsthetics.

It would seem to us to be a serious matter that legislation is to be instituted to protect the public from the profession, and we sincerely trust that, even though at the last moment, the profession will render such a step unnecessary by a whole-hearted adoption of this wise provision.

With regard to the other matter, much difference of opinion has arisen. During the past thirty years, since the passing of the Dentists' Act, 1878, there has grown up among us a sister profession, which has already shown itself not unworthy to be ranked among the learned. In high professional ideals, in the scientific methods employed, and in the excellence of the curriculum drawn up for its students, the Dental Profession need fear no comparison with the Medical, yet in the proposed Bill this profession is to be deprived of the privilege, which its members have always enjoyed, of administering anæsthetics to their patients. We should remember, too, that it is to a member of this profession that we owe the introduction of anæsthetics into general surgery, and to dentists also we are indebted for many subsequent advances in the methods of administration. For years past the dental curriculum has

made instruction in anæsthetics compulsory on dental students, and the dental hospitals were among the first to recognise the importance of having on their staffs special officers as anæsthetists. Many of our medical anæsthetists to-day owe their skill, in a large degree, to the practice they have enjoyed in such hospitals. Why, then, is it proposed to exclude dentists in the future from this privilege? It is not because they have abused this privilege, for the most searching inquiry has failed to bring forward evidence that dentists have contributed in any considerable degree to the anæsthetic death-rate. This is the more remarkable, too, when we consider that the dental qualification does not confer the right to sign a death certificate, and consequently any deaths occurring in dentists' practice must necessarily become the subject of judicial investigation.

Thirteen deaths are recorded as having occurred in the practice of dentists during the past twenty-one years. In eight of these cases the administrators were registered dentists, but only four of them possessed diplomas. It is not possible to give any exact figures as to the number of times anæsthetics were administered by dentists during these twenty-one years, but it is calculated that this number must have amounted to many hundreds of thousands.

I have followed carefully the correspondence that has lately taken place in the *Lancet* in reference to this matter in order to try, if possible, to find out the arguments brought forward in support of the contention that the dentists of the future should be prevented in the public interest from administering anæsthetics. The issue appears to have been obscured by the introduction of many irrelevant matters, so that it is not easy to find an explicit statement of the case. The chief arguments relied on seem to be that in order to safely administer any of these drugs a full and complete medical training is essential, as well as a special training in the matter in hand. Further, that the permission to dentists to administer anæsthetics necessarily leads to the undesirable practice of the one person being both administrator and operator. We may dismiss this latter argument at once, as it applies in the same way, if not

in the same degree, to the medical profession. Anyone who knows anything of midwifery practice will admit the truth of this statement. With regard to the former argument, the answer is more difficult. I am fully convinced that some knowledge of physiology and clinical medicine is of great importance, if not essential, in a good anæsthetist, but I am as firmly convinced that technical skill and practice in the art of administration is an absolute necessity. The long and melancholy death-roll of patients anæsthetised by fully qualified medical men for operations of a trivial nature make it quite clear that medical knowledge alone is no safeguard in anæsthesia, whereas the technical skill of many non-qualified anæsthetists has conferred a high degree of safety on their patients. There are few of us, I believe, who would hesitate in our choice between the unpractised, yet medically qualified, anæsthetist, and the one who, though without medical training, had acquired that technical skill which results from long practice. I do not wish, however, to labour this point; my contention is that, if a similar course of instruction is made compulsory on dental as on medical students, the medical training of a dental student should be quite sufficient to make him a competent anæsthetist. If one takes the curriculum for dental students of the Royal College of Surgeons in Ireland it will be seen that not only has the student to receive instruction in anatomy, physiology, anæsthetics, and to attend the teaching of a clinical hospital for twelve months, but that he has to pass an examination in these subjects, including a clinical examination in medicine and surgery. This being the case, I contend it is unfair of medical men to urge the withdrawal of a privilege so long enjoyed and so little abused from a great profession that enforces such a high standard of education from candidates for its ranks. Such a withdrawal cannot be justified on the plea of the public safety, and it is as unfair as it is unwise to urge it on the plea of the protection of the doctors.

I would suggest that the Bill should be amended by extending to registered dentists the same privileges in regard to the administration of anæsthetics as are extended to the registered

medical practitioners, and, at the same time, by exacting from dentists a similar course of instruction in the subject as is enjoined on medical students. I believe in this way the safety of the public would be adequately ensured, a distinct check would be given to unqualified practice, the position of the anæsthetist would be enhanced, and the honour of both professions would be maintained. Whatever opinion the medical profession may see fit to adopt on this important matter, I sincerely trust that that opinion will be formed on a careful consideration of the merits of the case, and that in such consideration professional exclusiveness will have no part.

ART. XX.—*A Note on Grocco's Paravertebral Triangle.*[a] By T. GILLMAN MOORHEAD, M.D., F.R.C.P.I.; Physician to the Royal City of Dublin Hospital.

IN 1902, at one of the Italian Medical Congresses, Grocco called attention to a new physical sign which he had observed in cases of pleural effusion, and which he believed to be of importance in the diagnosis of effusion. The sign consists of a triangular area of dulness present on the healthy side, its base lying horizontally about the level of the twelfth rib, and with its apex at the level of the upper margin of the fluid on the diseased side. The sides of this triangle are formed by the vertical line of the vertebral spines internally, and externally by an oblique line joining the apex and the outer extremity of the base. The base itself, as described by Grocco, varies in length from 3 to 10 c.m's., the exact length being apparently independent of the size of the effusion. This triangle is now generally known as the paravertebral triangle.

Grocco's discovery soon led to an increased degree of care being taken in the percussion of the basal portions of the thorax, and many observers confirmed and extended his original results, so that at present there appears to be a general consensus of opinion as to the presence of the sign

[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, May 14, 1909.

in cases of pleural effusion and as to its absence in most other pathological conditions of the thorax. As far as I am aware, the sign has not previously been discussed at the Academy, and, in consequence, I thought it might prove of interest to bring down my own rather meagre observations, which extend over the last three years, with the object of eliciting the experience of other members of the Academy.

Before, however, relating my own conclusions, I may, perhaps, be permitted to deal first with the various explanations that have been offered to account for the dulness, and, secondly, with its value as a sign.

The explanations are three in number, and may be rapidly dealt with. They are as follow:—(1) Some observers have stated that the dulness is normally present on both sides, but has hitherto been overlooked. These would ascribe its presence to the increase in thickness of the erector-spinal muscle that takes place from above downwards. This theory may be at once disproved, either by percussion of a healthy chest and by comparison of the note obtained with that over a true paravertebral triangle, or by observing the disappearance of the triangle subsequent to removal of fluid in cases of effusion. (2) Ewart, who was apparently the first to make use of the sign in this country, and Forbes-Ross attribute the dulness to a dampening effect exerted by the effusion, and preventing the vertebral column from conducting the resonance of the sound side. This dampening effect, they maintain, would be exerted to a greater extent at the lower part of the thorax, where the costo-vertebral space is deep, and the fluid abundant, than above, where the fluid is more scanty, and the costo-vertebral space shallow. Possibly this explanation is partially correct, but in dealing with the third theory we will see that there is evidence to show that the present one is not the sole explanation. (3) The third theory explains the dulness by mediastinal displacement, and by consequent slight condensation of the base of the healthy lung. In favour of this view we have (*a*) the experiments of Baduel and Siciliano, who have been able to produce the characteristic triangle by injections of gelatin

into one pleural cavity of a cadaver, and have shown by dissection that the injection causes distinct mediastinal displacement; and (*b*) a case reported by Keith in a full term fœtus with massive effusion, in which the mediastinal mesentery that extends from the back of the pericardium to the vertebral column, was displaced to the sound side by the fluid. This mesentery, as Keith points out, is not usually described by anatomists, but when viewed from the back, it can be seen to constitute a distinct fold of pleura swinging the heart in position within the thorax. A transverse section through a thorax, hardened by formalin, will readily display this mesentery, and will also demonstrate how readily it could be drawn over to the sound side by the greater negative intrapleural pressure that exists on that side in cases of unilateral effusion. It will be noted that this mesentery extends upwards only to about the level of the fourth dorsal vertebra.

As regards the value of the sign, all physicians will, I think, be agreed that any aid to the diagnosis of effusion in doubtful cases is to be welcomed. Most observers who have studied the sign, moreover, insist upon its value, and Ewart goes so far as to call it the "crucial sign" of pleural effusion, when, as is sometimes the case, the dulness can be shown to disappear when the patient lies on the diseased side. My own conclusions, stated briefly, are as follows:—

(1) The sign is found only in cases of pleural effusion, and is absent in pneumonia and pulmonary fibrosis. I have been unable to satisfy myself of the presence of a bilateral paravertebral triangle, such as has been described by Ewart, in cases of ascites, and attributed by him to a bilateral dampening effect exerted by the intraperitoneal fluid on the vertebral column. I have not met with any case of pericardial effusion with dorsal dulness since I commenced to study the sign, nor have I since then seen any case of subphrenic abscess, but I can readily understand the presence of a small paravertebral triangle in cases of sub-diaphragmatic suppuration.

(2) The sign is not present in all cases of pleural effusion. I personally found it in fourteen out of nineteen cases only.

This is in agreement with the earlier observations of others, but most clinicians now maintain its invariable presence in effusion. I have not observed any difference varying with the side on which the effusion existed, though some maintain that the dulness is best marked when the effusion is on the right side.

(3) The sign, when present, is of great value: its absence is of less importance.

(4) If the sign has once been observed to be present its disappearance is of great value in distinguishing between thickened pleura and persistent effusion.

(5) I have never observed the dulness to extend above the fourth dorsal spine, even when the effusion filled the entire chest. This observation does not agree with the statements of Ewart and others, but I am convinced of its correctness in the few cases I have examined. I believe, moreover, that the reason for my finding is to be found in the fact that the easily movable mediastinal mesentery does not extend above the fourth dorsal spine. Above that level lies the superior mediastinum, in which the structures are less readily movable. This observation, therefore, which I have frequently demonstrated to the class, is a further point in favour of the dulness being caused by mediastinal displacement.

QUEENSLAND ASTHMA PLANT.

THE *Euphorbias* are very numerous in the Colony of Queensland, and amongst them is the *Euphorbia pilulifera*, the "Queensland Asthma Plant," which has a remarkable reputation for curing this troublesome complaint. Several pharmaceutical preparations of the plant are extensively sold in Australia. A chemist has been conducting an examination of *E. pilulifera* in order to discover its active principles. The result of his examination showed that the green plant contained 79 per cent. by weight of water and 3 per cent. of ash, leaving 18 points of vegetable matter. The dried plant contained an alkaloidal substance equal to about one part in a thousand. It contained also a glucosidal substance to the amount of not more than four parts in the thousand; possibly the active principle of the plant was one or both of these.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Causation of Sex. By E. Rumley Dawson, L.R.C.P. Lond.; M.R.C.S. Eng. London: H. K. Lewis. 1909. Demy 8vo. Pp. xii + 196.

The author of this book endeavours to show that, in the human, female offspring are derived solely from the left ovary; males from the right.

Dealing first with the anatomy and physiology of the reproductive organs, Dr. Dawson proceeds to show that normally each menstrual period corresponds to a single ovulation, and that after any given number of menstrual periods a similar number of scars of corpora lutea are to be found in both ovaries taken together.

A chapter on fertilisation is largely occupied by a defence of the doctrine of polyspermy, the author believing that the number of spermatozoa entering an ovum determine the degree of likeness of the offspring to its male parent.

Chapter VII. is devoted to proving that the father has no influence on the sex of the child. The theory is now supported by cases of pregnancy in the human and other mammals in which operation or *post-mortem* examination showed a definite corpus luteum in the ovary corresponding to the sex of the child. Extra-uterine pregnancies and pregnancies in abnormal—*e.g.*, bifid-uteri—are also adduced in support, as are cases of pregnancies after ovariotomy.

The excessive birth-rate of boys over girls is explained by the larger size and more accessible position of the right ovary.

Whatever may be the causative factor in sex determination, we are not greatly impressed by Dr. Dawson's method of dealing with the subject, or by his logic. Sex production in the human is dealt with as a thing essentially different from

that in lower lives. The works of other authors receive scanty, if any, recognition, the evolutionists being scarcely mentioned. Thus Darwin's and Mendel's names do not appear, while Geddes and Thomson are disposed of in a couple of lines. There is no mention of M'Clung's accessory chromosome, whose influence on sex has lately been attested by Professors Wilson, Morgan, and Corous. Any facts which are in accord with the author's theory, and which collectively might be said to lend it support, are spoken of individually as proofs. Thus, on p. 119 is cited a case of Bland Sutton. The ovary and broad ligament were lacking on the left side. The patient had two sons, no daughter. We are told "no case could be more conclusive." On the same page, quoting a case of Dr. Galabin's, in which pregnancy occurred in a patient whose right ovary was the seat of a dermoid, the left containing a corpus luteum of pregnancy. Dr. Dawson writes, "unfortunately the sex of the child when ultimately born was not given, but *I feel confident* it was a girl!"

Proofs of this kind, together with the dedication of the book to the "Medical Martyr, Semmelweiss," and the author's manifest anxiety to claim originality for his theory, are apt to cause the profane to smile. Indeed, the author's views on evolution, as put forward in Chapter V., are, we think, more original than the theory itself. Thus we read that the young of the herring or cod are exact replicas of each other; in them there is no question of heredity or the exhibiting of ancestral tendencies or peculiarities to a varying degree.

We are told (p. 47) "that it is reasonable to suppose that the association of the left ovary with the production of the female sex is due to the fact that the weaker sex should result from the weaker side of the body."

Hermaphroditism is, we think, very difficult of explanation on this theory; nor do we feel that the difficulty is got over by stating, however correctly, that no case of true *functional* hermaphroditism has been recorded in the human. Both sexes occurring after extirpation of one ovary in the mother are explained on the supposition that some ovarian tissue has been left behind.

The last two chapters deal with forecasting and determining the sex of the child at will by a knowledge of every alternate

menstruation being connected with the right ovary and producing males. The author claims by this method to have been a true prophet in 97 per cent. of cases.

Physiological Principles in Treatment. By W. Langdon Brown, M.D., F.R.C.P.; Physician to the Metropolitan Hospital. London: Baillière, Tindall & Cox. 1908.

We have read this book with much pleasure, and can strongly recommend it. It is the type of book which a student should carry with him from the physiological laboratory into the wards. The title itself informs the reader what he may expect to find. Each system of the body is discussed, and the relief of its pathological conditions is considered in the light of its physiological function. The first chapter deals with the principles of organo-therapy, and should constitute for the student a useful guide as to what organic substances may be given with scientific faith, and what should be avoided as mere quackery. There is no branch of therapeutics so full of abuses as this, and every practitioner requires to keep his physiology up-to-date to prevent himself being the mere distributor of the remedies, organic and otherwise, that are daily brought to his notice by manufacturing firms. The quasi-scientific thought that leads to the prescription of pulmonary extracts for phthisis is worse than crass ignorance. For such a mode of thought this chapter will suit as a useful and reliable corrective. The second chapter, entitled "The Rational Treatment of Gastric Disorders," gives a short account of the work done by Pawlow and his school, and shows how our conceptions concerning diseases of the stomach and their treatment must be remodeled in the light of this knowledge. The work of the pancreas, the physiology of the purin bodies, and the conditions of oxaluria, phosphaturia, and albuminuria occupy the next three chapters. An excellent chapter on acidosis and acid intoxications follows. In it the writer especially insists on the importance of giving citrates as well as carbonates in treatment, and also upon the importance of administering the carbonates of calcium and magnesium, as well as that of sodium. The next chapter, on intestinal intoxications, is also good, if only

for the fact that the author derides those writers who explain every condition by referring it to absorption of abnormal toxins from the intestinal tract, and above all from the colon. We have heard too much of late of the baneful influence exerted upon our bodies by our large intestine, and it is time that there was a reaction. Some of us have been wondering for months past how such a condition as health can possibly exist, and have felt that a time would come when some scientific imbecile would advocate the complete removal of the alimentary canal and its glands, with the object of enabling those who survived the operation to attain to an age only previously reached by the early biblical characters. The remaining four chapters of the book deal with irregular action of the heart, with the vasomotor system, with cyanosis, and with calcium metabolism.

The book on a whole is a somewhat new departure, and fills a distinct want.

A History of the Reading Pathological Society. By Jamieson B. Hurry, M.A., M.D., President of the Society. With Illustrations. London: John Bale, Sons & Danielsson, Ltd., 8vo. Pp. 170. 1909.

The Reading Pathological Society was founded on July 13, 1841, some three years after the Pathological Society of Dublin was established, and five years before the Pathological Society of London began its career. In the words of its enthusiastic President, "throughout its existence of nearly seventy years it has encouraged a high ideal of life and work amongst its members, and has contributed to the welfare of the public as well as of the profession."

The volume before us has evidently been to its learned author a labour of love. In its exquisitely printed pages Dr. Hurry traces the Society's history year by year from its foundation to the present time.

That the members were thoroughly alive to medical progress is manifest from such statements as these: "Session Six (A.D. 1846-7). The first administration of ether for anæsthesia in England took place on December 19, 1846, and in the following February the value of the new drug

was reported to the Society, and its successful use described." "Session Seven (A.D. 1847-8). A.D. 1847 must always be an *annus mirabilis* in the history of medicine, since it conferred on suffering humanity the priceless gift of chloroform. On November 10, 1847, Sir James Simpson read his famous paper on 'A New Anæsthetic Agent as a Substitute for Ether,' and on November 24 a sample of chloroform was shown to the Society, its successful administration for anæsthesia being reported shortly afterwards." By the way, these quotations prove that the activities of this Pathological Society were by no means confined to pathology. At the same time a splendid record of work done in some seventy years in this department of medical science is enshrined in the pages of Dr. Hurry's handsome volume.

We agree with the author that "an Association of over eighty practitioners of medicine, one and all cherishing a lofty ideal, must exercise no small influence for good. If its members, though differing on theological, political and social questions, are but united in the desire to advance the science of Medicine and to maintain a high standard of professional conduct, the Reading Pathological Society must and will continue to flourish *in plurimos annos!*"

The Students' Pocket Prescriber. By H. AUBREY HUSBAND, M.B., C.M., B.Sc., F.R.C.S. Ed., M.R.C.S., L.S.A. New Edition. Edinburgh: E. & S. Livingstone. 1909. Pp. 175.

ALTHOUGH we are not keen admirers of ready roads to knowledge in the various branches of Medicine and the collateral sciences, we must admit that this booklet is one of the best of its kind. The "Introduction" is especially well done, and gives the medical student, within a very small space, a great deal of sound advice as to prescribing.

The arrangement of the prescriptions is somewhat arbitrary under such headings, in alphabetical order, as alteratives, antacids, antispasmodics, aperients (cathartics), anthelmintics, astringents, caustics and counter-irritants, diaphoretics and diuretics, emetics, and expectorants, gargles and inhalations, lotions, liniments, ointments, &c., narcotics

(and sedatives), refrigerants (and salines), stimulants and tonics. Then follow, in succession, uterine therapeutics, general prescriptions, weights and measures, and an index of diseases.

It is to this last item that we particularly object on the ground that a medical student should, from the start, be taught that his duty is to treat the patient, and not merely the disease or symptom from which he may be suffering.

There are two prescriptions for "croup," whatever may be the meaning attached to this term by the author. One of these is a four-ounce mixture containing a drachm of tincture of the perchloride of iron, a drachm of chlorate of potassium, an ounce of glycerine, and cinnamon water to four ounces. The dose is a teaspoonful every two hours for a child four years old. Are not thirty-two doses rather too many to order at one time, especially for a young child in an acute and dangerous illness?

Pulmonary Tuberculosis and its Complications, with special reference to Diagnosis and Treatment. By SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Denver and Gross College of Medicine, University of Denver. Philadelphia and London: W. B. Saunders Company. 1908. 8vo. Pp. vi + 778.

WITHIN the last few years the Medical Profession seems to have succeeded in awakening the general public to the importance of tuberculosis as one of the chief factors of the high death-rate in civilised communities, and to the necessity of taking some more active measures to stay its ravages. For many years the profession preached on this subject to deaf ears, and it seemed to some almost hopeless to look for the time when this, like other preventable diseases, would be prevented. Lately, however, the public have been aroused to an interest in the matter, and now the prospects look much more favourable. With this awakening of public interest it was only to be expected that there would be a renewed interest shown in the disease by the profession, and that this would be marked by a distinct advance in our knowledge. We are glad to think that this advance has taken place, and

even though the last few years may not have been marked by any very striking new discovery, yet we are now in a much better position to make good use of former discoveries than we were some few years back.

In the case of tuberculosis, perhaps more than any other disease, Clinical and Preventive Medicine must go hand in hand. Early diagnosis and satisfactory methods of treatment are as yet the chief weapons with which we must combat the spread of the disease, since as yet preventive inoculations are impossible, and the chronicity of the disease will always render complete isolation an almost insupportable burden. We have still, no doubt, much to learn about diagnosis and treatment, but our knowledge, as far as it goes, is satisfactory and definite, and the practice which has resulted from it has given results which are most reassuring for future progress. In the fight against tuberculosis the general practitioner, and not the specialist, must always take the most important part, if, as it seems probable, satisfactory treatment is to depend on early diagnosis. For this reason we should like to think that the general practitioner was especially well informed in the best teaching on this matter. Dr. Bonney states that his book is designed especially for the use of general practitioners, and is, consequently, devoted to the clinical aspects of the disease and to practical considerations. The book is divided into six parts, dealing respectively with Ætiology and Pathology; Symptomatology, Course, Varieties and Terminations; Physical Signs; Diagnosis and Prognosis; Complications; Prophylaxis; General and Specific Treatment. It is impossible for us to deal in detail with the mass of information given under these various heads. Suffice it to say that it has seemed to us sound, practical and clearly expressed, while the various points are illustrated by a large series of instructive clinical cases. Our author tells us it is quite impossible to present an exhaustive treatise upon all phases of pulmonary tuberculosis, but we have not met with any book which so nearly succeeds in doing so. We feel, however, that this very completeness will debar many readers, and more especially those for whom it is particularly designed.

There are 189 original illustrations, twenty of which are in colour, and many of them are of quite unusual excellence.

We could wish, however, that the publishers had used a paper of less specific weight, for a large book printed on heavy paper does not favour comfortable reading.

Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease. By GEORGE HERSCHELL, M.D. Lond.; Physician to the West End Hospital for Diseases of the Nervous System, &c. London: Henry J. Glaisher. 1909. Pp. 32.

THE author offers this little work to the practitioner of medicine merely as a brief *resumé* of just so much of our present knowledge of lactic acid ferments as may be likely to be of assistance to him in prescribing them in a scientific manner. As such we welcome it, and we congratulate the author on the concise and clear manner in which he has presented to us the details of this comparatively new addition to our therapeutic armamentarium.

As the treatment is directed against auto-intoxication, the result of intestinal putrefaction, the first chapter is devoted to an account of our present knowledge on this subject, and concludes with a short description of the characteristics of the Bulgarian bacillus.

Chapter II. gives directions for the selection and preparation of lactic acid ferments for use in practice.

A large number of preparations are now on the market, and of these the author says "one or two of them are good, some are useless, and the remainder probably injurious."

He discusses the suitability for clinical use of those which can be obtained commercially, and concludes that "not only are the dry preparations the best, but that we must exercise the greatest care in the selection of these."

He then lays down certain rules as a practical guide in the selection of the tablet or powder, and gives precise directions for their use by patients—a point which he considers essential for the success of the treatment.

We have not had sufficient experience in the use of milk curdled by means of the bacillus of Bouchard to express any opinion on its general use, but we are a little sceptical about its value in all the disorders in which the author recommends it.

The list includes various affections of the stomach, some skin diseases, neurasthenia, gout, arterio-sclerosis, progressive muscular atrophy, acute ascending paralysis, some forms of anæmia, and many intestinal disorders. This last group seems to us the most promising.

That the treatment is not a simple one or one that should be undertaken in a haphazard fashion is plainly pointed out at the end of the book, and Dr. Herschell concludes by giving a few aphorisms, which he says "make for success."

We recommend every physician, before giving this method of treatment a trial, to carefully study the contents of this useful little work.

Massage in Recent Fractures, &c. By Sir William H. Bennett, K.C.V.O., F.R.C.S. Fourth Edition. With twenty-three Illustrations. London: Longmans, Green & Co. 1909. 8vo. Pp. 134 + x.

This book is a revised edition of a series of lectures on massage and early movements in fractures, to which have now been added two lectures dealing with sprains and their consequences, and rigidity of the spine.

The lectures are very explicit, and go into the details of the management of a case in a way which will readily appeal to the practitioner.

Pott's fracture is taken as an example, and, having emphasised that the point of primary importance is the accurate adjustment of the fragments, the subsequent stages in the treatment by massage are given in detail, with the help of some excellent illustrations.

The important fractures are then referred to, and the necessary modification in treatment by massage is given.

The lecture on sprains, their consequences and treatment, is a welcome addition to the book. It deals in a comprehensive way with a lesion which is too often belittled in practice, drawing attention to the number of so-called sprains which are complicated with fracture, in which the symptoms of sprain predominate, so as to make the diagnosis of fracture almost impossible without the help of X-rays. As the massage treatment must necessarily be modified in the case of a sprain

with fracture, the use of X-rays in all cases of sprain is advocated.

A chapter is devoted to the subject of stiffness of the spine, and includes a very useful clinical sign, which the author calls "the stammering spine," found in cases of rigidity due to muscular spasm.

We are sure the profession will appreciate the revised edition; its illustrations are good, and the various cases quoted, which have come under the author's care, add greatly to the interest in the reading of it.

The Principles and Practice of Physical Diagnosis. By JOHN C. DACOSTA, Jr., M.D., Assistant Visiting Physician, Jefferson Hospital. Philadelphia and London: W. B. Saunders Company. 1908. 8vo. Pp. 548.

DR. DACOSTA has attempted the difficult task of writing a useful book on the principles of physical diagnosis, and, on the whole, we may congratulate him on the result. The task is, we think, difficult, for in order to succeed the author must not only be skilled in the use of these methods but he must also have had an extensive experience of them all to enable him to select those which are really useful. Such a one should be a good chemist, physicist and biologist, as well as a clinician of extensive experience. Such a combination is not common, and so one must not be surprised to find books like these of very unequal merit. Dr. DaCosta has limited himself to a consideration of these methods as far as they affect the examination of the diseases of the stomach and thorax, and so does not deal with that very important branch of physical examination of the nervous system by electricity. In this omission we suppose he was quite justified, but the title of the book would lead us to believe that the subject would be dealt with.

In the treatment of the various departments of physical diagnosis, there is much that is admirable, and the descriptions are given in a clear and interesting manner, but, at the same time, there is a good deal with which we do not find it possible to agree. For example, our author's preference for inflation of the stomach by the use of drugs rather than

by the use of the stomach-tube. We believe the latter method is preferable in every case, and also much safer. Our author points out the use of the bismuth meal for X-ray examination of the stomach, but says nothing of its more important application for examination of the intestines. The book is profusely illustrated by excellent diagrams and photographs, though we cannot say that we altogether approve the multiplication of photographs of nude women which has become so general in the illustrating of American medical text-books.

Physiology and Pathology of the Urine. By J. DIXON MANN, M.D., F.R.C.P. Second Edition. London: C. Griffin & Co. 1908. Pp. 324.

DR. DIXON MANN is an accomplished physician and an excellent chemist, and has turned his knowledge to good account for the benefit of others.

The volume under review, which has deservedly reached a second edition, is, we consider, the best and most practical treatise on the urine which has recently appeared in the English language, and we can warmly recommend it to our readers. It is true that, as a storehouse of *clinical* observations and cases, it cannot compete with Sir W. Roberts' Treatise on Urinary and Renal Diseases.

The second edition of Mann's book, four years later than the first, has been brought up-to-date, and has been largely re-written.

The author wisely pays special attention to ordinary clinical methods of investigation, and many new and important methods of analysis are described.

Slowly and laboriously we are gaining insight into the complex problems of metabolism, and some substances which formerly were regarded as essentially abnormal are now known to be only relatively so.

The book offers a sound clinical guide to the practitioner, and no physician who desires to be abreast of the times can afford to be without it.

Special criticism is scarcely needful, and we shall refrain from fault-finding except in one particular of loose nomen-

clature. In the Table of Contents under Nitrogenous Substances are classed urea, purin bodies, uric acid and its salts, xanthin bases, and allantoin. But what is a student or a physician who is not conversant with organic chemistry to make of separate headings for the groups of amino-acids and aromatic acids; and of proteins?

Surely amino-acids, by definition, are nitrogenous bodies; proteins include about 15 per cent. of nitrogen, and kreatinin contains nearly 4 per cent. more nitrogen than urea.

Operations on the Uterus, Perinæum, and Round Ligaments. By W. J. Stewart M'Kay, M.B., M.Ch., B.Sc., Senior Surgeon, Lewisham Hospital for Women and Children, Sydney. One Hundred and forty-eight Plates. London: Baillière, Tindall & Cox. 1909. Crown 4to. Pp. xvii. + 454.

This is a very handsome volume and beautifully illustrated. It deals exclusively with certain minor operations on the round ligaments, the uterus and the perinæum. The first chapter is devoted to the consideration of anatomical points, mechanism of lacerations, and treatment of recent years. The second chapter deals with Lawson Tait's perinæorrhaphy, and the succeeding chapters with "operation for relaxed vaginal outlet," "cystocele," "rectocele," "operations on the lacerated and hypertrophied cervix," "displacements of the uterus," "curettage" of the uterus, and "dysmenorrhœa."

The illustrations are so numerous and so predominant that one is inclined to regard them as the more important part of the book, and to consider it rather as an atlas of operations than as a descriptive work. From an artistic point of view, the drawings are admirable, and are quite as good as any work of the kind we have seen in this country. From the point of view of accuracy, however, there is a good deal to be desired, a fact doubtless due to the distance which separated the author and the artist during the execution of the drawings. Thus, although the author dwells on the importance of suturing the levator ani muscle when performing perinæorrhaphy, and, although there are numerous drawings to show the exact position of the muscle, there is not a single drawing of a

perinæorrhaphy in which the muscle is shown, and, as a result, there is no attempt to show its suture.

In Fig. 87, showing "the amputation of a hypertrophied cervix," an elastic ligature surrounds the cervix, which is transfixed by pins. We have never seen such a practice adopted, and fail to see what is to be gained by it. We cannot find any description of the ordinary conical infra-vaginal amputation of the cervix.

The book as a whole is an interesting contribution to gynæcological literature, and should meet with a ready sale. In a future edition, however, we should strongly advise the author to print his illustrations not as plates, but in the text. The result will be a more satisfactory volume to read.

Constipation and Intestinal Obstruction. By SAMUEL GOODWIN GANT, M.D., LL.D.; Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital; Attending Surgeon for Rectal Diseases at the New York Post Graduate and St. Mary's Hospitals, and the German Polyclinic Dispensary. Pp. 559, with 250 original Illustrations. London: W. B. Saunders Co. 1909.

THE object of this volume, the author tells us in the preface, "is to present to the profession a concise and practical treatise on the ætiology, pathology, symptoms, diagnosis, and treatment of *constipation* and *obstipation* (intestinal obstruction). During the past fifteen years such flattering success has been mine with the non-medical and surgical treatment of these affections that I have thought it worth while to emphasise in this work the drugless management of constipation and obstipation."

After a few pages of introduction, the anatomy and physiology of the stomach and intestinal tract are fully described and illustrated. The ætiology of chronic constipation is next considered, and the author very properly attaches great importance in the diagnosis of constipated individuals to the detection of the ætiologic factors which are responsible for the infrequent and insufficient stools, for

"the success of the treatment will depend entirely upon whether all the elements tending to produce and aggravate the constipated state are discovered and corrected. Usually there will be found one or more ætiologic factors which are strong enough to interfere with the fæcal current and delay the evacuation, and also conditions consequent upon the original causes which, unless corrected, are in themselves sufficient to keep up the constipation even after the original causes of the trouble have been removed.

In the chapter on general remarks on treatment, the following occurs:—"Dispensary statistics show a small percentage of real permanent cures in this class of patients. In the average clinic it is the custom to give to the patients a piece of paper with twenty-three, or other number, marked upon it, calling for a stereotyped cathartic or laxative formula, which will probably secure an evacuation, but have no lasting effect. Unfortunately, many a physician pursues the same plan with his private patients, with the additional privilege thrown in that they may see him write out the prescription. In both instances little if any time is devoted to the making of a careful diagnosis, and to instructing the patient as to what he should eat and how he should live." No doubt there is a good deal of truth in the above, but we think the author is a little severe on his professional brothers that do not make a specialty of a "constipated clientèle" in stating that "little if any time is devoted to the making a careful diagnosis." In this country, at any rate, we are afraid most practitioners could not afford to follow the author's steps, for he tells us that "personally I do not accept patients who will not place themselves in my hands and submit to a regular course of treatment, covering a period lasting from six to eight, and occasionally ten, weeks. The patient can gain nothing from an occasional visit to the office for advice and treatment in so far as a permanent cure is concerned, whereas a great deal can be accomplished with the systematic handling of persons suffering from constipation." We also fear that unless patients were suffering very severely they would decline the six or eight or ten weeks' treatment.

The book is well illustrated. The various operations that may be necessary in the different varieties of obstruction

are fully described and illustrated, and it should be of assistance to all interested in this rather large branch of Medicine and Surgery.

A Manual of Operative Surgery. By SIR FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D., F.R.C.S., Sergeant-Surgeon to H. M. the King; Surgeon-in-Ordinary to H. R. H. the Prince of Wales; Consulting Surgeon to the London Hospital; and JONATHAN HUTCHINSON, F.R.C.S., Surgeon to, and Lecturer on Surgery at, the London Hospital; formerly Examiner in Surgery, Royal Army Medical Department. Third Edition. With new Coloured Plates and many new Illustrations in the Text. In Two Volumes. Vol. I. Cassell & Co., Ltd. 1909. Pp. 775 + x.

A PERUSAL of the first volume of this new edition of Treves's popular manual of operative surgery shows us the work is not only undergoing a thorough revision, but it is also being entirely re-arranged. This first volume is now devoted mainly to abdominal surgery and the surgery of the genito-urinary organs, whereas the first volume of the previous editions was devoted more to general surgery, including the surgery of the limbs, ligature of arteries, &c. The high standard of excellence of the teaching of previous editions is fully maintained in the volume before us. The best methods of performing the various operations are the only ones described as a rule, but here and there a form of operation which, in our opinion, is obsolete is described and illustrated. The first part, consisting of 86 pages, is devoted to general principles, and has undergone thorough revision to bring it into line with modern ideas and requirements.

Speaking of the use of rubber-gloves, the following statement appears: "Even the thinnest rubber lessens that delicacy of touch and precision in the use of the fingers that are of such primary importance in a difficult operation. The matter may well be left to the surgeon's experience and individual opinion." For our own part we think it is simply a matter of becoming accustomed to the use of gloves, and having become accustomed to their use, and having acquired experience in operating in rubber gloves, one can perform operations re-

quiring great delicacy of touch and manipulation with as much facility with gloved-hands as without gloves. The volume abounds in practical information, but we regret to say that the number of illustrations falls far short of what we think necessary in an operative work of reference or in a work for daily use. Any surgical work, but more especially a work on operative technique, should be abundantly—nay profusely—illustrated if it is to have any great educational value. No matter how high the standard of excellence reached by the text—and the teaching in the volume before us reaches the highest standard of excellence possible—the educational value of the work must be distinctly diminished if the various procedures are not properly illustrated.

Some of the illustrations in the volume under review might have been eliminated a together without much loss, such as the illustrations of Wood's and Thiersch's methods of treating the condition of ectopia vesicæ. The pages on the surgery of the gall-bladder and biliary passages have six illustrations, three of which represent instruments (a scoop, fig. 44; Tait's cholelithotomy forceps, fig. 45; and a needle-holder, fig. 47). The other three illustrations have but little educational value.

No surgeon can afford to be without a copy of this work; but it is simply on account of the soundness of the views expressed in the text, and we think it a pity that the authors and publishers did not see their way to bring the work more into keeping with modern requirements in the matter of illustrations.

The Operations of Aural Surgery, together with those for the Relief of the Intracranial Complications of Suppurative Otitis Media. By C. Ernest West, F.R.C.S., and Sydney R. Scott, F.R.C.S. With Illustrations. London: H. K. Lewis. 1909. Pp. xii + 201. Demy 8vo.

We have seldom reviewed a work on any branch of operative surgery with as much pleasure as we experienced when reading the volume mentioned above. The authors have placed before us, in the most lucid manner and in the best of English, the essential details of all the important operations of aural

surgery, and there is no padding used, nor is there any omission of necessary repetitions.

Probably the most original part of the book is contained in the "Introduction," which occupies thirteen pages. In it the authors give a brief account of much original work which they have done concerning the diagnosis of disease of the semi-circular canals and the value of nystagmus as a localising symptom. The nystagmus obtained by rotation and caloric nystagmus have, in their hands, been developed into valuable diagnostic aids, and vestibulotomy has been placed on the list of recognised aural operations.

It is the best book on aural operations with which we are acquainted, and its price is very moderate.

A Synopsis of Surgery. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.); F.R.C.S. (Eng.); Assistant-Surgeon to the Bristol General Hospital; Surgeon to the Cossham Hospital; Senior Demonstrator of Anatomy at the University College, Bristol. Bristol: John Wright & Sons, Ltd. 1908. Pp. 486.

THIS book is an epitome of the salient facts met with in surgical practice. The author has endeavoured to place them in an easily referable form for revision. The plan of the book followed is that of Ross and Carless; but special treatises and monographs are occasionally referred to. The chief value in our opinion of a work of this sort is that of rapid revision on the part of a student for his final examinations in surgery. The educational value of such a book is almost nil; but it well fulfils such a purpose as we have indicated above, and as such we have no hesitation in recommending the book. But it should be distinctly understood that we do not recommend it to supply or take the place of such works as those of Ross and Carless, Walsham and Spencer, or Thomson and Miles.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. Magee Finny, M.D., F.R.C.P.I.
General Secretary—James Craig, M.D., F.R.C.P.I.

SECTION OF OBSTETRICS.

President—E. Hastings Tweedy, F.R.C.P.I.
Sectional Secretary—Henry Jellett, M.D., F.R.C.P.I.

Friday, January 29, 1909.

Dr. Purefoy in the Chair.

Modified Instruments.

Dr. Ashe demonstrated a new principle for application to Bozemann's catheter and Braun's hollow sound by means of which every part of the uterus could be dealt with without fear of undue pressure. The instrument which he exhibited allowed all the fluid to come back, and with it the uterus could be flushed out. It was simple and cheap, and could be absolutely sterilised.

The Chairman considered that the instrument had a wide range of utility.

The Secretary spoke and Dr. Ashe replied.

Adeno-carcinoma of the Vulva.

Dr. Solomons exhibited specimens of above. He said that adeno-carcinoma of the vulva was such a very rare condition he thought the case would be of interest to bring before the section. This he was able to do by the kind permission of Dr. Tweedy, the Master of the Rotunda Hospital.

M. W., aged thirty-three, married eight years, 4-para, was admitted in November, 1908, to the Rotunda Hospital. She had

noticed a lump in the vulva two weeks before admission, and this ruptured just before she entered the hospital. Pruritus was absent. Patient was blanched from loss of blood. On examination it was found that there was a large stinking mass protruding from the vulva, which seemed to spring from inside the right labium, just at Bartholin's gland. The tumour was evidently an hæmatoma. On its removal an excavated sloughing sore came into view, which had all the appearance of acute phagedæna. A microscopic examination showed nothing save blood clot. The cavity was plugged with iodoform gauze. Thinking that perhaps the affection was syphilitic, the patient was given a mixture of hydrarg. perchlor. and potassium iodide. Insufflation with calomel was also used. Two weeks later, as there were no signs of improvement, the excavated sore was opened up, scraped, curetted, and thoroughly swabbed out with iodised phenol. In spite of this treatment, combined with keeping the wound plugged with peroxide of hydrogen, alternating with formalin 1 in 3, together with the antisyphilitic treatment, the phagedænic sore spread with alarming rapidity, and it became evident that a condition of malignancy probably existed: this, despite the fact that no glandular enlargement existed anywhere and the negative microscopic findings. Therefore, heroic measures were considered to be indicated, so, under an anæsthetic, the parts were explored, and the curette, knife, scissors, cautery and nitric acid were freely used in an endeavour to stay the disease, whilst large portions of the tissue that had not sloughed were removed for microscopic examination. Although the infection spread over to the other side, yet the urethra seemed in no way implicated, and lay in the midst of the disease as an isolated tube.

Their pathologist, Dr. Rowlette, reported that the case was one of adeno-carcinoma of the vulva. This diagnosis was only arrived at after he had cut a great many sections.

There were no apparent primary growths in any part of the body, and the only possible original seat of the disease seemed to be in Bartholin's gland.

Ruptured Extra-Uterine Pregnancy.

Dr. Freeland exhibited specimens from a case of the above, taken from a patient, thirty-five years old, who had been married fifteen years, and had had four children and four abortions. She had come to him two weeks before complaining of

hæmorrhage, and menstruation overdue two weeks. On examination she was found to have retroverted uterus and a small tubal mass in the left side. He thought she had a tubal pregnancy. She would not remain in hospital: she had considerable pain when she went home. She returned the next day, and the following Tuesday he operated. On opening the abdomen he found the pelvis full of blood. The fœtus had escaped into the abdomen and was attached by the cord to the rest of the ovum in the tube. The ovary was left in position, and she had done very well.

The Chairman thought it extraordinary that the loss of blood was so inconsiderable, seeing the size of the rent in the tube, unless the rupture took place gradually.

Dr. Holmes spoke.

Double Pyosalpinx.

Dr. FitzGibbon exhibited specimens of the above from a patient, aged thirty-one. She had been married seven years, and had had one pregnancy, which ended at term, five years before the operation in August last. She had been under observation eighteen months, and during that time very little change was seen in the pelvic condition. The uterus was normal in size, and hard. On the right side there was a hard mass pressing down on the right fornix, and on the left side they could make out a tube thickened, but not embedded. Her menstrual periods were normal, and she was very little troubled until the last six weeks, when she developed severe pain. The abdomen when opened seemed tolerably normal until he attempted to pull up the intestines, when nothing would move, and he found the whole of Douglas's pouch filled with adherent small intestines. He got the whole of the tumour out without tying any vessels, as they had been obliterated. He closed the stump of the cervix with two interrupted sutures, and packed the pelvis with gauze. Two days after the operation the pulse went up to 110, though the temperature neither then nor subsequently went above 99°. He withdrew the gauze and put in a long drainage tube. On the third day the pulse climbed gradually up to 160; the following night it fell to 140. He then put in a shorter tube. She continued to improve; but next morning he found a smell of urine. He replaced the tube with one of rubber, and concluded that the drainage tube had sloughed through the bladder. He kept the

tube in until he got a diminution in the amount of pus, although some still came away in the urine. The patient made a good recovery. The case showed the danger of hard drainage tubes put through the abdominal wall into the pelvis, and also showed how pyosalpinx, which was obviously chronic for eighteen months, could still set up an infection of the pelvis, although it was stated that if left for twelve months the pus would become sterile.

Dr. Holmes thought the absence of any menstrual history or pain was a most remarkable thing.

Dr. Jellett thought that the bladder fistula was due to an original extension of the infection to the bladder wall at the place where the two were adherent. Necrotic areas were frequently found, and there was no reason why there should not be one on the bladder muscle that gave way when it lost its support. That would account for the fistula not having formed for several days; obviously it was not made at the operation.

Dr. Gibson said that the removal of the uterus, ovaries and tubes in so young a woman should not be performed unless very urgently indicated. He was sure, however, that the symptoms were sufficiently bad to indicate operation, and he appreciated the impossibility in this case of performing a more conservative operation.

Professor Alfred Smith thought the drainage should have been through the vagina. He did not gather whether the infection was pure or mixed. He thought that streptococci alone became so attenuated in eighteen months as to be harmless.

The Chairman said he did not think there was any positive knowledge as to when infection became sterile. His own experience was that pyosalpinx might remain quiet for years, and under fresh stimulation might light up again. He was satisfied that where there was reason to believe a swelling to be a pyosalpinx it was always a possible danger, and should be dealt with in most cases by radical operation. Most of them would be inclined to drain in the direction of the vagina, still it was surprising what effective drainage could be carried on through the abdominal wall.

Dr. FitzGibbon, in reply, said he started with the intention of draining through the vagina, but from start to finish he did not see the bottom of Douglas's pouch, and he had not the least idea where the ureter was, and at the end of two hours' operation he drained in the easiest direction.

A Short Criticism of the Radical Cure of Backward Displacements of the Uterus.

Dr. Jellett began by discussing the present attitude of gynæcologists towards the radical cure of backward displacements of the uterus. He considered that in all cases in which the patient's symptoms called for relief a radical operation should be performed in preference to the prolonged use of a pessary. As exceptions to this rule he mentioned puerperal displacements, as they could usually be cured by the temporary use of a pessary, and cases in which the circumstances or general health of the patient made operation inadvisable. He showed that, if a patient had to be curetted, the performance of a radical operation prolonged her stay in hospital only by a week. He divided the different radical operations into three groups :—(1) Cases in which a major operation has been performed, and in which the peritoneal cavity has been opened. For these cases he always concluded the major operation by performing a ventral suspension. (2) Cases in which the displacement is complicated by adnexal disease. In these cases he advised the opening of the abdomen followed by ventral suspension. (3) Cases of uncomplicated backward displacement. In these cases he unhesitatingly advised Alexander's operation on account of its safety and its after-results. He then discussed Alexander's operation, and referred to the statements of Drs. Herman and Galabin, who considered it an essentially dangerous operation. In opposition to this he quoted statistics of 385 cases, practically all of which were successful, and amongst which there was a single death from croupous pneumonia, and unconnected with the operation. His own statistics were as follow :— Forty-four cases were operated on. In thirty-nine the usual double incisions were made, and in five a single incision. There were thus eighty-three separate incisions, and every one of these healed by primary union. One incision subsequently suppurated, owing to the fact that the subcuticular suture broke during removal and was left behind. One patient died, but her death, which was from double croupous pneumonia coming on about a week after the operation, had nothing to say to it. In one case the uterus subsequently fell back, and in this case only one ligament had been shortened. The other was left, as it was difficult to find, and as the operation had been already prolonged by the preliminary steps of curetting, trachelorrhaphy, and

ligature of piles. In this case the uterus was in a normal position when the patient was seen six months later, but it had fallen back when seen two years later. Two patients at least were subsequently delivered, and after delivery the uterus remained in a normal position. The speaker then stated in detail the reasons he considered Alexander's operation the operation of choice in cases of uncomplicated backward displacement of the uterus.

The Chairman said he had an opportunity of seeing the case, and leant at first to the idea that it was a form of syphilitic disease. He was particularly struck with the absence of induration of any tissue in the neighbourhood of the disease, which he would have thought likely to be observable in malignancy.

Professor Alfred Smith said he was against Kelly's operation, as he looked upon the suspension as wrong. He believed in the efficacy of Alexander's operation for simple backward cases. That, however, applied to a limited class of case. If Alexander's operation was used in all cases that came to them there would not be sufficient beds for them. It was only in the better-class patients that shortening of the round ligaments would come into greatest practice. In a case which he thought an ideal one for radical operation the uterus righted itself when he removed the pathological conditions. If he had shortened the round ligaments he would have thought that it brought about the result. He considered a modification of Bumm's operation the best.

Dr. Ashe said that even if the round ligaments were shortened they would stretch again. He believed Alexander's operation to be by far the best on physiological grounds. It was surprising how in simple cases complications were found when the abdomen was opened, and that was, he thought, a point in favour of the suspension method. He thought there might be a fear of hernia.

Dr. Holmes said the difficulty was to know when they had not got complications. An enormous number of women who came with backward displacement suffered also from sterility, and no gross lesion was found in the tubes. In 50 per cent. of cases that he had examined the uterus had gone back after childbirth, and he found cases often get right by inserting a pessary for about two months. He thought there was still room for the pessary in gynæcology, and he did not regard any of the operations as final.

Dr. Gibson said that he considered the Alexander-Adams the best operation for uncomplicated cases of retroversion requiring treatment. Many cases of retroversion occurring after labour

could be successfully treated by replacing the uterus and applying a suitable pessary before the patient got out of bed. For complicated cases of retroversion he preferred Olshausen's operation. He had had an opportunity of examining after childbirth six women who had had the Alexander-Adams operation performed, relapse had occurred in one case, in which the woman suffered from subinvolution.

Dr. FitzGibbon said that when they were dealing with an uncomplicated case they presupposed that the adnexa of the uterus were healthy, and there was nothing to interfere with pregnancy and the proper involution of the uterus after childbirth. In such cases there was a very large scope for the pessary.

Dr. Matson said that when he was house surgeon to Mr. Alexander he had the opportunity of seeing him operate in many cases, and at that time he said he usually placed a pessary in position for about two months after the operation.

Mr. L. G. Gunn said there was a cystoscopic method of examination of the bladder for determining to what extent the uterus had been brought forward. He had found a uterus pulled over somewhat on one side.

The Chairman recalled a case operated on by Mr. Alexander, in which there were three miscarriages afterwards. If a woman became pregnant after suspension the peritoneal supports were rent, and there was nothing to prevent recurrence. He assumed that before operation they would see that the uterus was reduced in size. He was certain that there were many cases in which the pessary would give relief, and some in which it would effect a cure.

Dr. Jellett, in reply, said the difference between the treatment which he advocated and the use of the pessary was a week in hospital, and he thought that was less serious than two or three years' pessary treatment, even if in some cases the pessary succeeded. Kelly's operation was not an ideal one, but it had the advantage of taking very little time to do when the abdomen was already open. So far from Alexander's operation causing a hernia, it would probably cure any inclination to hernia, as the walls of the inguinal canal were sutured and a patulous external ring was closed. Obliquity of the uterus was not, he thought, a matter of importance. In three or four cases in which he only shortened one round ligament he had in a month or so found the uterus in the middle line.

The great majority of cases were those in which the uterus had fallen back after childbirth, and in these there was no necessity to look for causes of sterility, but if there was any doubt as to the condition of the adnexa, he agreed with Dr. Holmes in opening the abdomen. In one of his cases a patient became pregnant afterwards, and had great pain from pulling on the external abdominal ring as the uterus developed. The uterus was also very large, and there was hydramnios. He feared during pregnancy that the operation was in some way responsible for this, but eventually the woman was delivered of a stillborn syphilitic infant. He thought that a similar cause probably accounted for the repeated abortions in the case recorded by Dr. Purefoy.

SECTION OF PATHOLOGY.

President—A. R. Parsons, M.D. Dubl., F.R.C.P.I.

Sectional Secretary—Professor White, Royal Coll. of Surgeons.

Friday, February 12, 1909.

The President in the Chair.

Tumour of the Brain.

Dr. Bewley exhibited a specimen of cerebral tumour. The patient, a railway guard, had five severe epileptiform fits at intervals between June and November, 1907. He also suffered frequently from a feeling of tingling in the left forearm and leg. He was admitted into hospital in November. While in hospital the man complained of attacks of a tingling feeling in his left side, which was relieved by severe rubbing. He once got in hospital an epileptiform fit, beginning in the left arm. He never had a headache throughout, which was extraordinary. He never vomited once. He had no optic neuritis. Still, they could not help thinking that there must be a brain tumour on the right side of the brain, and from the frequency and pronounced nature of the attacks they thought it a cortical lesion, but the evidence in favour of localisation was not great. Knee-jerks were absent. There was no paralysis; he could walk very well, and was apparently in good health. He was admitted to hospital on November 14, and went home for Christmas on December 24. Four weeks afterwards he returned a good deal worse. There was almost complete paralysis of the

left arm, and incomplete paralysis of the left leg, anæsthesia of the left arm and leg, and great drowsiness. The left side of the face was slightly paralysed. The drowsiness continued and merged into coma, and he died on February 11 comatose. He hardened the brain by a method suggested by Dr. Leeper. He passed a large aspirating needle through the orbit and back into the sub-dural space, and through it poured in a quantity of formalin. The brain preserved its shape exceedingly well, and the sections exhibited showed the tumour clearly. The suspicion that it was a cortical lesion was not correct. It was an infiltrating glioma, and was interesting from the absence of the three cardinal signs of tumour and from the history of epileptiform seizures. The case showed the difficulty of diagnosis in some instance of brain tumour.

Dr. Leeper said the method to which Dr. Bewley had referred was taught to him by Professor Marie at Paris. He used it with satisfactory results in the case of insane persons who were a long time dying. He thought the epileptic seizures might have been due to multiple thrombosis. It was suggested that the blood of epileptics became more acid than normal, and that thrombi formed.

Septic Endocarditis starting from Congenital Pulmonary Narrowing

Dr. Bewley said the patient was a young man, aged thirty-two, who since childhood had been told that there was something wrong with one of the valves of his heart. He enjoyed good health until July or August last, when he began to suffer from chills and rigors. These recurred from time to time, and about September last he got some pleuritic trouble on his left side. When in Cork he suffered from pain in his right side, and Dr. Pearson, of Cork, found some pleural trouble. He had a good deal of fever. Dr. Pearson found he had a loud systolic murmur heard all over the region of the heart, but specially loud over the second left costal cartilage. He thought he had a congenital narrowing of the pulmonary orifice. The patient was afterwards brought to Dublin and put under his care. He looked badly, and had some degree of irregular temperature. He had wasted a good deal. His liver was palpable, but seemed fairly natural in shape. A trace of albumen was present in the urine. He had a very slight cough. The diagnosis was not very clear. He (Dr. Bewley) thought it was probably general tuberculosis, but

no tubercle bacilli were found on examination. Another possibility was that there was a concealed focus of suppuration. The third idea was that it was a case of septic endocarditis. He did not himself think so, as there was no sign of emboli in the body. The patient became gradually weaker, and died in ten days. When the heart was removed he noticed that the two ventricles had approximately the same thickness in the muscular walls. The tricuspid orifice was slightly smaller than one would expect, and rather smaller than the mitral orifice. In the right ventricle he found a constriction about an inch and a half below the pulmonary valve. When they opened the pulmonary artery they found, starting from the constriction and growing up to the valves, which looked fairly healthy, an enormous mass of vegetations. There was also a small opening in the septum between the ventricles. The left side of the heart and the aorta were perfectly healthy. They found scattered through the lungs a great many masses of infarcts surrounded by zones of inflammation; one or two were breaking down into little cavities. The diagnosis was a slow form of septic endocarditis, grafted on a congenital narrowing of the right ventricle just below the pulmonary orifice.

The Secretary said the sections of the vegetations under the microscopes were crowded with micro-organisms. There were present a diplococcus and a Gram-staining bacillus. Inoculations from a very mixed culture-tube made from one of the infarcts killed two rabbits in the course of a few hours. He recovered two organisms from the animals. He was almost certain that the diplococcus was the pneumococcus, but he did not yet know what the bacillus was.

Dr. Kirkpatrick asked if any attempt had been made to recover organisms during the patient's life.

Dr. Harvey asked if Dr. Bewley had any theory to account for the vegetations occurring on the right side of the heart, which might throw some light on the vexed question of why vegetations usually occurred on the left side. Did he think it was due to the extra force of the blood coming through, or had it anything to do with the aeration of the blood being altered by the communications between the auricles and ventricles?

The President asked if there was any evidence of infection of the general systemic circulation.

Dr. Bewley, in reply, said he had charge of the case

only for ten days, and during that time the patient was obviously dying. He could not find bacilli in the sputum, and he did not get any examination of the blood made. The condition might have been due to some roughness about the constriction and the increased force. He did not think there was any change of aeration. The pressure on both sides was probably much the same, so that there was evidently no free flow of blood between the two sides. All the other organs were healthy; he did not examine the brain. There was no trace of sepsis except in the lungs.

Duodenal Ulcer.

Dr. James Little exhibited a specimen. The patient was of the age, about sixty, when duodenal ulcers were, in his experience, most frequently seen, and he thought that nearly all he had seen had been in men, and he had seen more in private than in hospital practice. The man was well nourished and healthy-looking, but for five or six months he had been subject to abdominal pain which was in proportion to the solidity of the food he took. The pain was rather to the right of the umbilicus. About ten days before admission to hospital he had two bleedings from the bowels, but he did not seem to think himself very ill. After three or four days in hospital he passed the half-full of a chamber vessel of bright-coloured blood, which looked as if it had escaped from the intestine not very far up. No trouble was found, however, in the rectum or descending colon. He had a further bleeding, and later he suddenly *vomited* for the first time a large amount of blood. On the same evening he had another large hæmorrhage, and died an hour or two afterwards. At the *post-mortem* they found a duodenal ulcer, and the cause of death was the rupture of an artery in the floor of the ulcer, which really was the head of the pancreas. He had never before seen death under the same circumstances. There was a second ulcer in the duodenum.

The President asked if the man had exhibited any symptoms of hunger-pain.

Mr. Wheeler said he had had five cases recently; one was verified by *post-mortem* and four by operation. All were past middle life, but none of the age of sixty. In four out of five duodenal ulcer was diagnosticated chiefly on account of the hunger-pain which came on generally on the right side about four hours

after food, and was relieved by eating something. Vomiting was irregular, and had no relation to food. In the fifth case the ulcer had perforated when the abdomen was opened, and was not diagnosticated; the duodenum was practically rotten and leaking.

Mr. Stokes said Mayo found that 69 per cent. of ulcers were duodenal, and in males the proportion was still higher. Gastric ulcer was rather commoner in females. The hunger-pain was found in any lesion of the middle gut.

Dr. Moorhead said that of two cases of duodenal ulcer he had seen one in a woman aged fifty. The typical hunger-pain was present. The ulcer was found by operation, and a complete cure was effected. The other case was a young man, aged twenty-two, who never had the hunger-pain. He had symptoms of perforation, and a perforated duodenal ulcer was found on operation.

Dr. Cahill said the age-limit was probably the final crisis after a chronic trouble of many years, so that duodenal ulcer began much earlier than was usually thought. The hunger-pain was found in several other conditions. A definite time-relation could be found by giving the patient something indigestible, like pork, to delay the pain.

Dr. Little, in reply, said he had no doubt that the hunger-pain was clinically important, but it was certain that it was not so pathognomonic as it was supposed to be.

Tumour of Brain.

Dr. Little also exhibited a specimen of cerebral tumour taken from a girl seventeen years of age. She had come to hospital about ten days ago, having sickened and vomited on the Friday previous to the Tuesday on which she was admitted. On the Sunday she became unconscious. She was unconscious on admission, and appeared to have paralysis of both sides of the body. She had very strongly contracted pupils, and, remembering a similar circumstance in a case many years ago, he made a diagnosis of a pons lesion. He made a *post-mortem*, and in the centre of the pons he found a hæmorrhage as big as a marrow-fat pea.

Professor Scott said it was a pure hæmorrhage, but not of an ordinary type. Nearly every artery appeared to have weakened walls and the apparent tumour was made up of innumerable discrete hæmorrhages.

Stenosis of Tricuspid and Mitral Orifices.

Dr. Coleman exhibited a heart with stenosis of tricuspid and mitral orifices. The patient was a girl about twenty-four. She had a history of attacks of rheumatic fever. She was admitted to hospital about six months ago, and died in five months. The prominent symptoms were dyspnœa, cyanosis, and some œdema, and two or three weeks before she died she had embolism of the right femoral artery, and in the case of the brachial artery the nutrition of the limb was retained, but she got gangrene up to the knee in the right leg, and amputation was performed. He diagnosticated mitral stenosis from the physical symptoms. An unusual point was that the pre-systolic murmur was heard over a more extensive area than usual. A thrill was present, but only over the mitral area. She was found at the *post-mortem* to have well-marked mitral stenosis. The mitral orifice was reduced to a mere slit, and she had considerable stenosis of the tricuspid. In addition she had recent vegetations on the aortic cusps.

Dr. Bewley and Dr. Little recalled similar cases.

SECTION OF STATE MEDICINE.

President—W. R. Dawson, M.D., F.R.C.P.I.

Sectional Secretary—W. A. Winter, M.D., F.R.C.P.I.

Friday, April 30, 1909.

The President in the Chair.

Physical Deterioration and a Remedy.

Mr. J. B. Story read a paper on the above subject. It will be found at page 401.

Dr. Falkiner spoke from personal experience of the value attaching to boy-scouting. Apart from the question of a territorial army, military training would be in every way an advantage. He thought, however, that it was a good thing to let a boy feel some sense of responsibility at an early age, as he believed it led to the making of better men.

Professor M'Weeney said he become convinced of the great utility of compulsory military training when living in Germany. The habits of co-ordinated action, subordination and devotion to duty, and sacrifice of self, which a well-conducted course of military training conduced, are invaluable in the development of the individual and the nation. The lack of co-ordination

was very marked in this country, and far too many of the children of the poorer classes were allowed to wander about the streets to acquire an anti-social character of mind, and to feel themselves as outside the scheme of things. The German system impressed him with the feeling of solidarity, and he considered the recommendations made by Mr. Story as most essential to the well-being of the State.

Surgeon-General Bourke, P.M.O., spoke of his experience of military training. There was a great difference between squads that had only a few days' service and those that had longer periods. He could assure them that even three months made a decided improvement, and the Swedish system had been found to be of great advantage. He had recruited at Preston and had rejected over half the candidates, but in agricultural districts, although the men had not the same intelligence, they were physically fitter. For scouting, the town men would be much sharper.

Dr. M'Vittie thought that the teeth were, perhaps, the most important indication of degeneration. He could not see how a man was going to stand hard work if he had not good opposing molars. It had been shown that 86 per cent. of the children in schools in Great Britain had very bad teeth, and he thought the figure showed that the race was degenerating at a rapid pace. If there was to be more prolonged physical drill it should be under the control of the medical profession. If carried out under the control of those who knew something about the machinery of the body it might be a great blessing. He was satisfied that well-handled compulsory service would benefit the country, not only physically, but mentally and morally, and do away with the reproach of the policeman all over the place; but there was a danger of letting the matter be rushed by enthusiastic yet ignorant persons.

Dr. Nolan spoke of the good results of the Swedish system in his Asylum in Downpatrick.

The President said he had been converted to the doctrine of compulsory military service by a residence in Germany. The average young German, previous to the age of military service, was a slouching round-shouldered person, but afterwards was well set up, vigorous, and manly looking. It had been argued against compulsory military service that it took the male population from their occupations when they should be learning them, and retarded the development of the country, but he thought the

progress of Germany did away with that argument. The great advantage of early training was that it got a boy at the stage when he combined the self-indulgence of the child with some of the force of a man. It was a critical stage, and drill would be the salvation of the young men of the country.

Mr. Story replied.

General Anæsthetics Bill.

Dr. Kirkpatrick read a paper dealing with the General Anæsthetics Bill now before Parliament. It is published at page 411.

Dr. Craig said that Dr. Kirkpatrick stood almost alone in his defence of the dentists who were not also registered medical practitioners. Although in favour of the Bill he thought they might legislate in far too many directions and so overload the student. The dentist who had taken the trouble to become a qualified medical man would not be touched by the Bill. It was only those who had not taken the trouble to go through the ordinary medical curriculum who would be hardly hit, and rightly so in his opinion.

Dr. Kirkpatrick, in reply, said he did not think the privilege of administering gas should be taken away from the dentists without due cause being shown, and the onus of proof lay with those who wished to withdraw the privilege. That was a point which had been lost sight of in discussions on the subject.

MEDICAL LIBRARY ASSOCIATION.

In connection with the first meeting of the Medical Library Association to be held in Queen's College, Belfast, during the last week in July, a loan exhibition will be held illustrating medical libraries and medical literature. Amongst other things the organisers of the exhibition are particularly anxious to receive the following:—(1) MSS. and early printed books. (2) First editions of noteworthy books. (3) Early Irish printed books. (There are few, if any, before 1700.) (4) Books on tuberculosis. (5) Books upon Celtic medicine. (6) Photographs of libraries. (7) Statistical diagrams giving number of volumes, issues, readers, income, &c. (8) Library papers, rules, &c. The Association will insure all loans, and the exhibits will be most carefully guarded. The Hon. Secretaries are J. Walker Hall and Cuthbert E. A. Clayton, The University, Manchester.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore.

Vital Statistics.

For four weeks ending Saturday, April 24, 1909.

IRELAND.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended April 24, 1909, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.9 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,142,308. The deaths registered in each of the four weeks ended Saturday, April 24, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Apr. 3	Apr. 10	Apr. 17	Apr. 21			Apr. 3	Apr. 10	Apr. 17	Apr. 24	
22 Town Districts	24.2	24.4	26.5	23.9	24.8	Lisburn -	27.3	18.2	27.3	40.9	28.4
Armagh -	13.7	20.6	34.4	48.1	29.2	Londonderry	26.6	18.1	25.4	16.9	21.8
Ballymena	19.2	38.3	19.2	9.6	21.6	Lurgan -	31.0	17.7	48.7	31.0	32.1
Belfast -	21.6	27.0	27.8	23.2	24.9	Newry -	21.0	12.6	8.4	16.8	14.7
Clonmel -	30.8	10.3	—	25.6	16.7	Newtownards	22.9	40.1	34.3	17.2	28.6
Cork -	35.6	22.6	30.1	27.4	28.9	Portadown -	20.7	15.5	—	31.0	16.8
Drogheda -	16.3	24.5	20.4	4.1	16.3	Queenstown	13.2	13.2	26.4	19.8	18.2
Dublin - (Reg. Area)	25.9	25.5	27.7	24.5	25.9	Sligo -	48.0	19.2	9.6	19.2	24.0
Dundalk -	4.0	27.9	19.9	23.9	18.9	Tralee -	5.3	5.3	10.6	37.0	14.6
Galway -	31.1	35.0	27.2	27.2	30.1	Waterford -	15.6	9.7	23.4	35.1	21.0
Kilkenny -	24.6	19.7	29.5	14.7	22.1	Wexford -	14.0	23.3	23.3	18.7	19.8
Limerick -	26.0	19.1	20.5	20.5	21.5						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, April 24, 1909, were equal to an annual rate of 1.3 per 1,000, the rates varying from 0.0 in fourteen of the districts to 13.7 in Armagh—the 7 deaths from all causes in that district including one from whooping-cough and one from diphtheria. Among the 172 deaths from all causes registered in Belfast are 7 from whooping-cough. Of the 40 deaths from all causes registered in Cork are one from whooping-cough, one from enteric fever, and one from diarrhœa. Of the 9 deaths from all causes registered in Lisburn 2 are from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, April 24, 1909, amounted to 289—150 boys and 139 girls; and the deaths to 194—94 males and 100 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 25.4 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the area, the rate was 24.5 per 1,000. During the sixteen weeks ending with Saturday, April 24, the death-rate averaged 27.0, and was 1.3 below the mean rate for the corresponding portions of the ten years 1899-1908.

Of the 194 deaths from all causes, 3 were from measles, 6 from whooping-cough, one from enteric fever, one from epidemic diarrhœa, 2 from cerebro-spinal fever, and 9 from influenza. In the three preceding weeks, deaths from measles numbered 9, 6, and 6; deaths from whooping-cough, 6, 7, and 11; deaths from enteric fever, 0, 2, and one; deaths from diarrhœal diseases, 2, 2, and 2; deaths from cerebro-spinal fever, 0, 0, and one; and deaths from influenza, 2, 3, and 4, respectively.

Three deaths were attributed to lobar pneumonia, 5 to broncho-pneumonia, and 16 to *pneumonia* (not defined).

Deaths from all forms of tuberculous disease, which had been 43, 42, and 43, respectively, in the 3 preceding weeks, fell to 29, the latter figure including 20 deaths from tubercular phthisis (*phthisis*), one each from tubercular meningitis and *tabes mesenterica*, and 7 from other forms of tuberculous disease.

There were 5 deaths from carcinoma and 5 from cancer, malignant disease (undefined).

The deaths of 6 infants, prematurely born, were registered.

To diseases of the brain and nervous system 8 deaths were ascribed, including one—that of an infant under one year of age—from *convulsions*.

Disease of the heart and blood vessels caused 27 deaths, and bronchitis caused 22 deaths.

The weekly returns did not contain any record of death by violence—accidental or otherwise.

In one instance only—that of an infant under one year of age—was the cause of death "uncertified."

Forty-eight of the persons whose deaths were registered during the week were under 5 years of age (28 being infants under one year, of whom 8 were under one month old) and 62 were aged 60 years and upwards, including 32 persons aged 70 and upwards, of whom 10 were octogenarians, and one (a female) was stated to have been aged 99 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended April 24, 1909, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain)	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Apr. 3	–	•	○	9	–	–	6	–	1	5	7	–	•	•	–	28
	Apr. 10	–	○	○	9	–	–	3	–	4	4	8	–	•	•	–	28
	Apr. 17	–	○	•	15	–	–	10	–	1	8	12	–	•	•	1	47
	Apr. 24	–	•	•	5	–	–	4	–	1	8	9	–	•	○	3	30
Rathmines and Rathgar Urban District	Apr. 3	–	•	○	5	–	–	3	–	–	–	–	–	•	•	*	8
	Apr. 10	–	•	•	–	–	–	2	–	–	3	–	–	○	•	•	5
	Apr. 17	–	○	•	–	–	–	2	–	–	1	1	–	•	•	•	4
	Apr. 24	–	•	•	1	–	–	1	–	–	–	–	–	○	○	•	2
Pembroke Urban District	Apr. 3	–	8	–	4	–	–	2	–	–	–	2	–	•	9	–	25
	Apr. 10	–	9	–	1	–	–	–	–	–	1	2	–	•	12	–	25
	Apr. 17	–	8	1	2	–	–	1	–	–	–	–	–	•	20	–	32
	Apr. 24	–	5	–	–	–	–	–	–	–	–	1	–	•	13	–	19
Blackrock Urban District	Apr. 3	–	○	○	–	–	–	–	–	–	–	–	–	•	•	–	–
	Apr. 10	–	○	•	–	–	–	–	–	–	–	–	–	•	•	–	–
	Apr. 17	–	○	○	–	–	–	–	–	–	–	–	–	•	○	–	–
	Apr. 24	–	•	○	–	–	–	–	–	–	–	–	–	•	•	–	–
Kingstown Urban District	Apr. 3	–	•	•	–	–	–	–	–	–	–	–	–	○	•	–	–
	Apr. 10	–	•	•	–	–	–	–	–	–	–	–	–	•	•	–	–
	Apr. 17	–	•	•	–	–	–	–	–	–	–	–	–	•	•	–	–
	Apr. 24	–	•	•	–	–	–	–	–	–	–	–	–	○	•	–	–
City of Belfast	Apr. 3	–	•	•	6	–	–	5	–	–	–	5	–	•	•	–	16
	Apr. 10	–	•	•	4	•	–	3	–	2	–	2	1	•	•	–	14
	Apr. 17	–	•	•	2	–	–	2	–	–	1	3	–	•	•	–	10
	Apr. 24	–	•	○	2	–		2	–	1		7		•	○	–	13

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended April 24, 1909, 13 cases of measles were admitted into hospital, 11 were discharged, and 36 cases remained under treatment at its close.

Seven cases of scarlet fever were admitted to hospital, 10 were discharged, and 48 cases remained under treatment at the close of the week. This number is exclusive of 16 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

There was no case of typhus under treatment in hospital during the week.

Nine cases of diphtheria were admitted to hospital, 8 were

discharged, there was one death, and 33 patients remained under treatment at the close of the week.

Eleven cases of enteric fever were admitted to hospital, 55 were discharged, there was one death, and 37 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 15 cases of pneumonia were admitted to hospital, 14 were discharged, and 28 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, April 24, in 76 large English towns, including London (in which the rate was 15.0) was equal to an average annual death-rate of 15.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.4 per 1,000, the rate for Glasgow being 17.4 and for Edinburgh 18.5.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended April 24. From this report it appears that of a total of 51 cases notified, 19 were of phthisis, 11 of scarlet fever, 10 of diphtheria, 5 of puerperal fever, 4 of erysipelas, one of enteric fever, and one of cerebro-spinal fever. Among the 330 cases of infectious diseases in hospital at the close of the week were 131 cases of scarlet fever, 64 of whooping-cough, 42 of phthisis, 42 of diphtheria, 15 of measles, 13 of erysipelas, 4 of cerebro-spinal fever, 3 of puerperal fever, 3 of chicken-pox, 2 of enteric fever, and one of small-pox.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of April, 1909.

Mean Height of Barometer,	29.884 inches.
Maximal Height of Barometer (7th, at 9 a.m.),	30.435 ,,
Minimal Height of Barometer (22nd, at 4 p.m.),	29.221 ,,
Mean Dry-bulb Temperature,	47.2°.
Mean Wet-bulb Temperature,	44.1°.
Mean Dew-point Temperature,	40.8 .
Mean Elastic Force (Tension) of Aqueous Vapour,	.256 inch.
Mean Humidity,	79.3 per cent.
Highest Temperature in Shade (on 10th),	68.0°.
Lowest Temperature in Shade (on 8th),	34.4°.
Lowest Temperature on Grass (Radiation) (8th),	30.9°.
Mean Amount of Cloud,	52.2 per cent.
Rainfall (on 22 days),	4.078 inches.
Greatest Daily Rainfall (on 3rd),	1.581 ,,
General Directions of Wind,	S.W., S., S.E.

Remarks.

April, 1909, may be described as mild, but, above all, characteristically showery, with a remarkable preponderance of winds from southerly points until the last four days, when cold N.W. and N. winds prevailed. The rainfall (4.078 inches) has been exceeded only once in April since the year 1865—namely, in 1877—when the measurement was 4.707 inches on 21 days. The most interesting feature in the month's meteorology was the "high-barometer" rainstorm which visited Ireland and (to a much less extent) Wales on the 2nd and 3rd. At 9 a.m. of Friday, the 2nd, the barometer stood at 30.392 inches in Dublin. From that point it fell slowly to 30.118 inches by 4 p.m. on Saturday, the 3rd. Thence it rose equally slowly to the maximum for the month, 30.435 inches at 9 a.m. of Wednesday, the 7th. At 7 a.m. of the 2nd a sheet of cirrus and cirro-stratus cloud covered the sky in Dublin. The wind gradually freshened until it blew a fresh gale early on the 3rd. Rain set in at 4 p.m. of the 2nd, and fell—with a couple of hours intermission on the afternoon of the 3rd—until 11 a.m. of the 4th, when the downpour finally ceased. The total precipitation in 37 hours was 1.978 inches. This rainstorm apparently resulted from the chilling of a moist

Atlantic air current, which spread over Ireland on the 2nd and 3rd, by an indraft of cold air from an anticyclonic system lying at the time over England and the North Sea. The 3rd was a day of almost unclouded sunshine at some English stations. A period of dry anticyclonic weather followed this remarkable rainstorm, cold, foggy nights and sunny days prevailing in Ireland from the 4th to the 10th inclusive. On the 27th there was a relapse into winter, with keen N.W. & N. winds, and frequent hail squalls and some thunder and lightning.

In Dublin the arithmetical mean temperature (48.6°) was 1.0° above the average (47.6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 47.2°. In the forty-five years ending with 1909, April was coldest in 1879 (the cold year) (M. T. = 44.5°), and warmest in 1893 (M. T. = 51.4°). In 1908 the M. T. was 44.7°.

The mean height of the barometer was 29.884 inches, or 0.034 inch above the average value for April—namely, 29.850 inches. The mercury rose to 30.435 inches at 9 a.m. of the 7th, and fell to 29.221 inches at 4 p.m. of the 22nd. The observed range of atmospheric pressure was, therefore, 1.214 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47.2°, or 7.2° above the value for March, 1909. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .476), the value is 48.2°, or 0.9° above the average mean temperature for April, calculated in the same way, in the thirty-five years, 1871–1905, inclusive (47.3°). The arithmetical mean of the maximal and minimal readings was 48.6°, compared with a thirty-five years' (1871–1905, inclusive) average of 47.6°. On the 10th the thermometer in the screen rose to 68.0°—wind, W.S.W.; on the 8th the temperature fell to 34.4°—wind, calm. The minimum on the grass was 30.9° on the 8th.

The rainfall was 4.078 inches, distributed over 22 days. The average rainfall for April in the thirty-five years, 1871–1905, inclusive, was 1.940 inches, and the average number of rainy days was 16. The rainfall, therefore, and also the rain-days were considerably in excess of the average. In 1877 the rainfall in April was very large—4.707 inches on 21 days. On the other hand, in 1873, only .498 inch was measured on 8 days. In 1908, 2.337 inches fell on 16 days.

Fog was observed on the 6th, 7th, and 8th. High winds were noted on 11 days, but reached the force of a gale only on

the 3rd. Hail fell on the 11th and 28th: sleet on the 30th. The temperature rose above 60° in the screen on three days—the 10th, 23rd, and 25th. It failed to reach 50° on the first 5 days. It never fell to 32° in the screen, and on only 2 nights did it fall to or below 32° on the grass. The mean lowest temperature on the grass was 39.0°, compared with 35.4° in 1908, 36.7° in 1907, 33.6 in 1906, 37.3° in 1905, 39.1° in 1904, 37.0° in 1903, 36.8° in 1902, 37.3° in 1901, and only 31.6° in 1887.

The rainfall in Dublin during the four months ending April 30th amounted to 8.628 inches on 63 days, compared with 8.704 inches on 74 days in 1908, 6.288 inches on 64 days in 1907, 9.120 inches on 77 days in 1906, 7.844 inches on 71 days in 1905, 9.056 inches on 74 days in 1904, 10.176 inches on 78 days in 1903, 7.175 inches on 59 days in 1902, 6.520 inches on 58 days in 1901, only 3.203 inches on 46 days in 1891, and a thirty-five years' (1871–1905) average of 8.070 inches on 66 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William J. Good, returns the mean height of the barometer as 29.885 inches, the highest reading observed being 30.432 inches at 9 a.m. of the 7th, the lowest, 29.296 inches at 9 p.m. of the 22nd. The mean temperature was 48.3°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 47.7°. Rain fell on 21 days to the amount of 3.929 inches, 1.640 inches being measured on the 3rd. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 150.8, giving a daily average of 5.0 hours. The corresponding figures for April, 1904, were 168 hours and 5.6 hours; for 1905, 105 hours and 3.5 hours; for 1906, 182.0 hours and 6.1 hours; for 1907, 116.7 hours and 3.9 hours; and for 1908, 138.8 hours and 4.6 hours. The highest temperature in the shade was 70.0° on the 10th, the lowest was 34.8° on the 30th. The lowest temperature on the grass (terrestrial radiation) was 22.3° on the 6th. The mean earth temperatures at 9 a.m. were—at a depth of one foot, 47.1°, at a depth of 4 feet, 46.5°.

Mr. Robert O'B. Furlong, C.B., returns the rainfall at Cloncevin, Killiney, Co. Dublin, at 3.45 inches on 19 days. The largest measurement in 24 hours was .98 inch on the 3rd. The average rainfall in April at this station in the 24 years, 1885 to 1908 inclusive, was 1.870 inches on 15.2 days. Since January 1,

1909, 8.38 inches have fallen on 61 days. Hail and sleet were observed on the 28th, 29th and 30th.

Mr. A. Victor Price recorded 4.04 inches of rain on 18 days at Clonsilla, Greystones, the largest measurement in 24 hours being 1.05 inches on the 3rd. The thermometer rose to 70° on the 10th, having fallen to 33° on the 5th. The mean temperature was 47.2°.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall amounted to 3.915 inches on 14 days. The heaviest fall in 24 hours was 1.000 inch on the 3rd. The total rainfall in 1909, up to April 30th, was 9.830 inches on 52 days.

Dr. Launcelot T. Burra, Resident Medical Officer at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, reports that the rainfall at that place was 4.052 inches, the maximal falls in 24 hours being .92 inch on the 3rd and 15th. The mean temperature of the air was 47.3°, the thermometer in the screen having risen to 69.0° on the 10th and fallen to 33.9° on the 6th.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was 4.54 inches on 19 days, compared with 3.14 inches on 20 days in 1908, 2.43 inches on 23 days in 1907, 1.68 inches on 17 days in 1906, 3.14 inches on 24 days in 1905, 1.48 inches on 18 days in 1904, 1.35 inches on 16 days in 1903, 2.63 inches on 16 days in 1902, and 1.19 inches on 12 days in 1901. The greatest daily rainfall was 1.06 inches on the 3rd. The mean shade temperature was 48.2°, compared with 48.3° in 1901, 46.6° in 1902, 45.9° in 1903, 48.9° in 1904, 46.4° in 1905, 45.4° in 1906, 46.4° in 1907, and 44.5° in 1908. The thermometric range was from 35° on the 7th and 8th to 64° on the 10th. Hail fell on the 11th, 14th, 16th and 29th.

Mr. T. Bateman, of The Green, Malahide, Co. Dublin, returns the rainfall at 3.262 inches on 18 days, compared with 1.803 inches on 12 days in 1908, 2.313 inches on 19 days in 1907, 1.336 inches on 13 days in 1906, and 1.773 inches on 22 days in 1905. The greatest fall in 24 hours was .805 inch on the 3rd. The shade mean temperature was 45.0°, compared with 42.1° in 1908, 44.0° in 1907, 43.6° in 1906, and 44.8° in 1905, the extremes being—highest, 64° on the 10th; lowest, 29° on the 30th.

At 21 Leeson Park, Dublin, Dr. Christopher Joynt, F.R.C.P.I., measured 3.935 inches on 19 days, the largest amount recorded in 24 hours being 1.450 inches on the 3rd.

At the Ordnance Survey Office, Phœnix Park, Dublin, rain

fell on 21 days to the amount of 3.671 inches, the greatest measurement in 24 hours being 1.300 inches on the 3rd. The total amount of bright sunshine was 173.8 hours, of which 11.7 hours fell on the 9th, the brightest day of the month.

In Cork, according to Mr. W. Miller, the rainfall amounted to 5.67 inches on 19 days, 1.24 inches being measured on the 2nd. Since January 1, 1909, 13.28 inches of rain have fallen in Cork against an average, for the first four months of the year, of 13.04 inches. Thunder and lightning accompanied a downpour of rain and some hail on the 29th.

At the Rectory, Dunmanway, Co. Cork, the Rev. Arthur Wilson, M.A., recorded 8.06 inches of rain on 21 days. The heaviest falls in 24 hours were 1.73 inches on the 2nd, 1.57 inches on the 3rd, .83 inch on the 15th, and .80 inch on the 21st. It rained without cessation from 2 p.m. of the 1st to 2 p.m. of the 4th, the measurement for 72 hours being 3.75 inches. From the 5th to the 11th a very fine spell—warm by day with frosts at night. The remainder of the month was showery with intervals of bright sunshine. The last week was very cold, with sharp night frosts. The rainfall at Dunmanway in the four months ended April 30 amounted to 21.36 inches on 75 days.

SABOURAUD'S TEST MEDIUM FOR DERMATOPHYTIC FUNGI.

In the cultural differentiation of the various ring-worm and other fungi that affect animals or man, one of the best media for routine work is that devised by Sabouraud, and termed the "test medium." It is described in the *Annales de Dermatologie et de Syphiligraphie*, 1908, p. 99. Briefly, it is prepared as follows:—Three litres of pure but not distilled water are poured into a vessel of five litres capacity, and 54 grammes of finely-cut agar, 30 grammes of Chassaing's granulated peptone, and 120 grammes of selected glucose as prepared by Cogit, of 36 Boulevard St. Michel, Paris, are immediately added. The neck of the vessel is corked with wool, and the whole is heated gradually up to 120° C. in the autoclave. It is then cooled to 100° C., and rapidly filtered through Chardin filter paper into culture tubes or other vessels as required, and the latter, in their turn, are corked with wool, heated gradually in the autoclave until a temperature of 120° C. is attained, at which point the heating is at once stopped, the vessels and their contents being allowed to cool spontaneously.—*The Journal of Clinical Research*, May, 1909.

BRITISH MEDICAL ASSOCIATION.

UTERINE CANCER COMMITTEE.

A.—AN APPEAL TO MEDICAL PRACTITIONERS TO PROMOTE THE EARLIER RECOGNITION OF UTERINE CANCER.

THE attention of all medical practitioners is directed to the necessity of emphasising the curability by operation of uterine cancer in its early stages. The adoption of a more extensive operation by the abdominal route has made it possible to deal successfully with cases hitherto regarded as inoperable, and to remove more of the pelvic cellular tissue as well as a portion of the vaginal walls; it is in these situations that recurrence is prone to develop. Many patients now present themselves for examination and treatment when the disease is considerably advanced, and it is hoped that by a wide-spread and accurate knowledge of the early signs and symptoms the number of such patients will gradually diminish. Special attention is directed to the following:—

1. Cancer of the uterus is at first a local disease.
2. Cancer of the uterus is often a curable disease.
3. Operation is the only satisfactory method of treatment.
4. The earlier the disease is recognised the more hopeful are the prospects of treatment.
5. The risk of operation in early cases is slight, and the chance of permanent cure is good.
6. The recognition of early cancer is not usually difficult, and the disease should not be overlooked by the medical attendant.
7. A medical practitioner who fails to make a physical examination of a patient exhibiting any of the symptoms of uterine cancer incurs grave responsibility.
8. Treatment of symptoms without a physical examination is unjustifiable.
9. Early cancerous ulcers should not be treated with caustic; their appearance becomes masked, and valuable time is lost.
10. It is an error to wait and observe in order to arrive at a diagnosis.
11. In doubtful cases a diagnosis must and can be made in a few days.
12. To examine, to diagnosticate, and then to treat, should be the rule in all cases.

Symptomatology.—Uterine cancer is at first a painless disease which does not affect the general nutrition. The early symptoms of cancer are :—Irregular bleeding of any description, even if there be only traces ; bleeding post coitum ; and watery, blood-tinged discharge. There may be no loss of strength or wasting, nor any condition to alarm the patient. Pain, wasting, profuse bleeding, and foul discharge, indicate advanced disease. As the majority of cases occur between the fortieth and fiftieth year, the symptoms are too often regarded by the patient as due to "change of life." The medical attendant should not accept this assumption until he is satisfied that cancer does not exist. Bleeding, however, slight, occurring after the menopause, should give rise to suspicion that cancer is present.

Examination.—If a patient with any of the above symptoms comes for advice, a careful visual and bi-manual examination must be made before any treatment is recommended. Should a patient refuse to be examined—and this is exceptional when the situation is explained—the medical attendant should decline any further responsibility, and no treatment should be advised. The examination should be made, even if bleeding is present, as valuable time may be lost by postponement until the hæmorrhage has ceased. It is most important to observe rigid aseptic precautions in all manipulations. In the examination, the condition of the vaginal portion of the cervix and of the cervical canal should be carefully noted. In the early stages new growth may be found on the surface of the vaginal portion of the cervix, in the lining of the cervical canal, or in the substance of the cervix. Any prominence on the surface of the vaginal portion or any ulceration—*i.e.*, a definite loss of substance—should at once arouse suspicion. A nodule or nodules, hard, inelastic, or irregular in outline, felt in the substance of the cervix, suggest the presence of cancer. If the whole cervix be affected, the relative hardness as compared with the soft elastic body is pronounced. The detection of high-lying cervical cancers, and cancers of the body of the uterus, is only possible after curettage or digital exploration. The signs common to the early stages of cancer of the cervix uteri are :—(1) The definite occurrence of new growth on the surface of the vaginal portion of the cervix, in the lining of the cervical canal, or in the substance of the cervix ; (2) friability ; (3) bleeding on manipulation. (1) The definite occurrence of new growth on the portio vaginalis or in the cervical canal cannot fail to arouse suspicion. When, however,

thickening of one lip or a portion of one lip of the cervix exists, the nature of the growth is difficult to determine if the mucous covering be still intact. It is then necessary to remove a portion of the affected tissue and examine it under the microscope. (2) Friability is a sign of the greatest importance, and may be tested by the finger nail, curette, uterine sound, or an ordinary long probe. Degrees of friability exist in early cases, depending upon the amount of interstitial tissue contained in the growth. (3) The occurrence of free bleeding after the slightest manipulation is, when combined with friability, a valuable diagnostic aid.

FORMS OF UTERINE CANCER.

Vaginal Portion of the Cervix.—(1) *Infiltrating Type.*—In this type, one lip, or a portion thereof, or even the entire vaginal portion of the cervix, is infiltrated with cancerous growth. Ulceration occurs early from the surface inwards, or necrosis may begin in the centre, and opening on the surface, lead to the formation of a deep ulcer, with undermined edges. The growth is somewhat hard in consistence, but is still friable if tested with the probe, curette, or finger nail.

2. *Papillomatous or Polypoid Type.*—This includes the so-called cauliflower excrescence, and is characterised by the growth from the margin of the os externum of a rounded or flattened tumour, varying in size, which may or may not have a definite stalk. It has a papillary surface, bleeds readily, and is very friable. More rarely it resembles a bunch of soft papillomata. Portions of the growth, pale red or greyish yellow in colour, are easily detachable on examination.

3. *Superficial Flattened Type.*—This is characterised by a flattened growth on the vaginal portion which tends to spread over its surface. It is prone to early ulceration and is frequently seen clinically as an ulcer. The lip or portion affected is thickened. The ulcer has a sharply defined, raised edge, indented at places, yellowish grey, finely granular surface, a moderate amount of loss of substance, and an infiltrated base. It bleeds readily on touch, and the amount of hæmorrhage is entirely out of proportion to the amount of injury inflicted. The finger nail can detach small pieces from its surface.

Cervical Canal.—1. *Superficial Type.*—The inner surface of the cervical canal is lined by an irregular papillary growth which at first attacks the substance of the cervix superficially. As the

growth increases portions of it may protrude through the external orifice of the cervical canal. When ulceration occurs the superficial portion of the growth is shed, with consequent hollowing out of the cervical canal, whilst the remainder of the periphery of the cervix is more or less thickened by infiltration. Where the external os uteri is narrow the process may be hidden, or patency of the os uteri may be produced by destruction of its margin, whilst in uteri where the os is already wide a crater-like cavity is formed.

2. *Infiltrating Type.*—The cancerous infiltration proceeds from the mucous membrane deep into the tissues of the cervix, and thus the whole cervix becomes thickened and enlarged, or the enlargement and infiltration may be limited to one or more portions of the cervical walls. Necrosis may commence on the mucous surface, or in the centre of the infiltrated area, and may lead to extensive destruction of the cervical tissues.

Probably the majority of cancer cases which are overlooked are examples of disease affecting the lining of the cervical canal or the tissues of the wall of the cervix.

Cancer beginning in the cervical canal is not difficult to detect where the os uteri is dilated as in many multiparæ. The finger passed into the cervical canal feels irregular elevations or nodules from which portions may be removed. Free hæmorrhage follows this manipulation. Difficulty arises where the os uteri is not dilated and the disease is hidden. A sound carefully passed into the cervical canal may give the impression of impinging on an irregular nodular surface, or friable tissue may be removed by the curette. Free hæmorrhage following such manipulations is a suspicious sign. Thickening and hardening of the cervix may be detected by a rectal examination, which is most helpful in detecting cancerous nodules in the cervical walls, and should always be made in such cases.

Body of the Uterus.—If the vaginal portion of the cervix, the cervical canal and the cervical walls have been proved to be free from disease attention must be directed to the body of the uterus. The uterus may not be enlarged, although a cancerous growth exists in its interior. Usually, however, there is some increase in size, which in advanced cases may be considerable.

Microscopical Investigation.—In doubtful cases, if there be a suspicious hard nodule, or erosion, or ulcer on the external os uteri, a piece including a boundary of healthy tissue should be excised. The vulva and vagina having been thoroughly cleansed,

the posterior vaginal wall should be retracted by means of a speculum, and the cervix pulled slightly downwards with a volsellum. A wedge-shaped piece, the size of a pea or bean, including *a margin of healthy tissue* should be excised with a sharp knife. The bleeding which follows this little operation should be stilled by the insertion of one or two sutures, or by firm tamponade with a strip of gauze. An anæsthetic is not essential. The patient should be kept in bed for 24 hours. The tissue removed should be transferred to a small stoppered bottle filled with absolute alcohol or methylated spirit, and forwarded without delay to an expert in uterine pathology. Where the cancer originates in the body of the uterus or in the cervical canal, it is frequently possible by using the curette, to obtain a sufficient amount of tissue for examination without the aid of anæsthetics. If this cannot be done, it may be necessary under an anæsthetic to curette the whole interior of the uterus and cervix, special attention being paid to the region of the tubal orifices.[a] All fragments should be collected, including those which may have been washed out. The douche, if employed, should consist of sterilised water or a weak solution of corrosive sublimate (1 in 10,000), as carbolic acid and lysol interfere with the staining of the cells. The fragments should be transferred to a stoppered bottle filled with absolute alcohol or methylated spirit. If the expert's report is favourable the patient will be reassured, if unfavourable immediate operation is imperative.

The Operation.—The question of operation is best decided by the operator, who may require to examine under anæsthesia.

To Recapitulate.—(1) Attend to all symptoms suspicious of cancer, and instruct the patient on their importance; (2) examine immediately all cases of bleeding or abnormal discharge; (3) make a definite diagnosis and do not wait for the disease to develop: (4) urge immediate operation if the diagnosis is established. The practitioner who diagnosticates cancer in an early stage, when operation offers a probability of cure, renders a service to his patient as great as that rendered by the operator.

B.—AN APPEAL TO MIDWIVES AND NURSES IN ORDER TO PROMOTE THE EARLY RECOGNITION OF CANCER IN THE WOMB.

Cancer of the womb is a very common and fatal disease in

[a] Special care should be taken in using the curette, as a cancerous uterus is easily perforated.

women, but *it can be cured by operation when it is recognised early.* A woman sometimes tells a nurse or midwife her ailments before she speaks to a doctor, and the nurse or midwife has then an opportunity of aiding our crusade against this terrible disease.

Cancer may occur at any age, and in a woman who looks quite well and who may have no pain, no wasting, no foul discharge, and no profuse bleeding.

To wait for pain, wasting, foul discharge, or profuse bleeding is to throw away the chance of successful treatment. The early signs of cancer of the womb are:—(1) *Bleeding*, which occurs after the change of life. (2) *Bleeding* after sexual intercourse, or after a vaginal douche. (3) *Bleeding*, slight or abundant, even in young women, if occurring between the usual monthly periods, and especially when accompanied by a bad-smelling or watery blood-tinged discharge. (4) *Thin watery discharge* occurring at any age. The nurse or midwife who is told by a patient that she has any of these symptoms should insist upon her seeing a medical practitioner in order that an examination may be made without delay. By doing so she will often help to save a valuable life, and will bring credit to herself and to her calling.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Flavoured Sanatogen.

As our readers are doubtless aware, "Sanatogen" is a food specialty said to contain glycerophosphate of sodium and casein. Rickets in children is one of the morbid conditions in which the preparation has been employed. But children, and in some cases adult invalids also, are at times very fastidious in the matter of taste, and to meet the objection shown by such persons to the ordinary preparation, the Sanatogen Company have put on the market a daintily flavoured sanatogen which they expect will suit the palate of the most fastidious invalid or child. The flavouring agent is vanilla, and it certainly renders the preparation more palatable. Sanatogen is now manufactured at works near Penzance, specially built for the purpose in the healthy surroundings of the Cornish Riviera. This tonic food—for such is sanatogen—may be obtained flavoured or unflavoured, the price and size of the tins in which it is packed being identical.

PERISCOPE.

THE ROYAL NAVY.

At the Entrance Examination for Surgeons in the Royal Navy, completed on the 14th of May, 1909, thirty-two candidates presented themselves for fifteen vacancies. Two gentlemen withdrew, eight were rejected for physical defects, and of the remaining twenty-two, eighteen obtained qualifying marks. The following is the list of successful candidates :—

	Number of Marks obtained
K. H. Hole, M.B., B.S. Lond., L.R.C.P., M.R.C.S., Guy's Hospital	2,151
G. F. Syms, L.R.C.P., M.R.C.S., Guy's Hospital	1,963
A. A. Sanders, M.B., Ch.B. Birmingham, Queen's Hospital, Birmingham	1,933
M. P. Fitzgerald, M.B., B.Ch., R.U.I., Queen's College, Cork	1,927
J. Hadwen, M.B., B.S., B.Sc. Lond., L.R.C.P., M.R.C.S., St. Bartholomew's Hospital	1,914
H. F. Briggs, M.B., Ch.B. Edin., University of Edinburgh	1,900
G. A. Jackson, M.B., B.Ch., B.A.O., University of Dublin	1,734
W. Miller, M.B., Ch.B. Glasgow, University of Glasgow	1,710
J. S. Orwin, M.B., Ch.B. Edin., University of Edinburgh	1,685
J. Barrett, M.B., B.Ch., B.A.O., R.U.I., University College, Dublin	1,645
H. W. Nichols, L.R.C.P., M.R.C.S., Middlesex Hospital	1,638
R. P. M. Roberts, L.R.C.P., M.R.C.S., Guy's Hospital	1,505
M. G. Malcolm, M.B., Ch.B., St. Andrews, University of St. Andrews	1,495
H. C. Devas, L.R.C.P., M.R.C.S., St. Thomas' Hospital	1,420
H. Burns, M.B., Ch.B. Edin., University of Edinburgh	1,405

The above-named gentlemen will undergo a course of instruction in special subjects at Haslar Hospital, on the completion of which another examination will be held, and prizes consisting of a gold medal, a silver medal, and three Navy regulation pocket cases awarded. The final position on the list will be determined by the combined results of the London and Haslar examinations.

In Memoriam.

GERALD FRANCIS YEO,

M.D. UNIV. DUBL., F.R.S.,

EMERITUS PROFESSOR OF PHYSIOLOGY, KING'S COLLEGE, LONDON.

With deep regret we announce the death on May 1, 1909, at Austin's Close, Harbertonford, Devonshire, of this distinguished physiologist and kindly Irish gentleman. Born on January 19, 1845, and therefore in his sixty-fifth year at the time of his death, Gerald Yeo was the second son of the late Henry Yeo, J.P., of Ceanchoir, Howth, Co. Dublin. He was educated at the Royal School, Dungannon, Co. Tyrone, from which he entered Trinity College, Dublin. Having graduated in Arts and Medicine in the University of Dublin, he started practice in this City, and became a member of the teaching staff of the School of Physic in Ireland—the Medical School of the University. After some time, Yeo went abroad, pursuing his post-graduate studies at the University of France, and in Berlin and Vienna. In 1874 he succeeded, as Professor of Physiology at King's College, London, the late Professor Rutherford, who was at that time appointed to the corresponding Chair in the University of Edinburgh. For some time Yeo served as Assistant-Surgeon at King's College Hospital, but resigning this post he devoted himself to the duties of his Chair, which he discharged with great success until 1890, when he voluntarily retired, the Council of King's College conferring on him the title of Emeritus Professor.

Gerald Yeo's career was one of hard work and well-earned distinction. He was the author of a "Manual of Physiology," which was republished in the United States of America, and ran through six editions within ten years. He played a prominent part in the foundation of the Physiological Society, of which he acted as Secretary for

fifteen years. With Dr. David Ferrier, he carried out an epoch-making research on cerebral localisation in monkeys. For an essay on Diseases of the Kidney he had been awarded, in 1871, the Gold Medal of the Pathological Society of Dublin. Among his other contributions to medical science were papers on "Psammoma of the Brain," "Glioma of the Brain," "Mycosis Intestinalis," the "Latent Period of Muscle Contraction" (*Proceedings of the Royal Society*), "Function-Roots of Spinal Plexuses" (with Professor Ferrier), and "Function of the Cortex of the Brain" (in the same *Proceedings*), and the "Relation of Latency to Contraction" (*Journal of Physiology*, 1883). So far back as 1874, he published a paper—one of the earliest on the subject—on "Bacteria in Disease" in the *Irish Hospital Gazette*, a medical periodical founded and edited by his friend the late Sir George Duffey.

During the active period of his professional career, Dr. Yeo acted as Examiner in Physiology in the Royal College of Surgeons, England (from 1880 to 1891), the University of London (from 1882 to 1887), the University of Cambridge (in 1887 and 1888), the University of Oxford (from 1889 to 1891), and the Royal College of Veterinary Surgeons (from 1885 to 1891). He was a successful teacher, and his keen Irish sense of humour stood him in good stead in managing his classes. An amusing incident once occurred, which may be recalled in illustration of this statement. One day a member of the class, possessed of more animal spirits than brains, threatened to cause disorder during a lecture on an abstruse physiological topic. The Professor suddenly paused in his delivery, seized a long pointer which was resting beside the black-board, and holding it out at arm's length gently touched with its tip the top of the offender's head. He then with a grave face pensively exclaimed—"Ah! I thought so—*empty!*" Needless to say there was no further disturbance—on that occasion, at all events.

In June, 1871, Gerald Yeo obtained the then recently founded Diploma in State Medicine of the University of Dublin in company with his friends, Arthur Wynne Foot, John Todhunter, and John William Moore.

On his retirement in 1890, Yeo became a hospitable and

genial country gentleman at Fowey, in Cornwall, and afterwards at Bowden House, Totnes, Devonshire, gardening, fishing and yachting being his favourite recreations. He was a member of the Royal Western and Royal St. George's Yacht Clubs. He was twice married—first, in 1873, to Charlotte, only daughter of Mr. J. Kitchen, and secondly, in 1886, to Augusta Frances, second daughter of Mr. Edward Hunt, of Belmore, Thomastown, Co. Kilkenny, by whom and by an only son he is survived. His son is a lieutenant in the 2nd Devon Regiment now stationed at Malta.

Although five and thirty years have passed since GERALD YEO left his native soil, his Irish friends ever kept for him a warm corner in their hearts, and he on his part never forgot that he was first and before all an Irish gentleman.

For a long time past his health had been a source of anxiety to his many friends. A spasmodic bronchial catarrh weakened his heart, and the end came suddenly at the last in the presence of his loving and devoted wife. To her and to her youthful and gallant soldier-son we tender our respectful and heartfelt sympathy in their bereavement.

J. W. M.

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